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*Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association
Northern Minnesota Medical Association and Minneapolis Surgical Society*

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OCTOBER 1923

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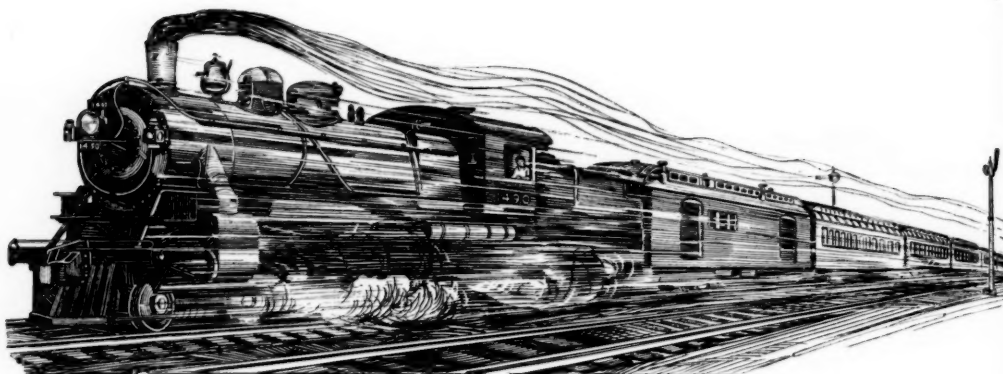
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MINNESOTA MEDICINE

*Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association
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Vol. VI

OCTOBER, 1923

No. 10

ORIGINAL ARTICLES

SURGERY IN A PAST GENERATION*

A. W. ABBOTT, M.D.
Minneapolis

After holding the horse and prescribing castor oil for the axles of my preceptor's two-wheeled chaise for a year, and then attending lectures and witnessing operations for six months, I regret to say that, as evidenced by my diploma, I was certified by my teachers as qualified to challenge all human diseases and to welcome newborn innocence to this sinful world. I had my own doubts about this and so had many of the good people on whom I tried it. An internship in a hospital eased my conscience somewhat.

At that time the bars were down and all fields wide open. There were no specialists except a few eye doctors; ophthalmologists came later. Every man took what his sign attracted and some signs were very attractive. Some practitioners, it is true, leaned to medicine, some to surgery, but nothing was refused, and then, as now, the rich were welcome and no questions asked. Some pulled on dental, and all on obstetric forceps and bled from a pint to a quart as occasion demanded.

In the early seventies, while my sign still glistered, the credulous keeping me from want, and the wise still passing my door, a change was coming, though we could not see its import or look forward to the wonderful present. A serious study and application of the then new germ theory, activity in experimentation and a new world-wide scientific energy were the early springtime tokens of what we now call modern aseptic surgery.

Sometimes a great mind discovers a great transforming, way-pointing truth—Galileo, Galvani, Newton, Harvey, Jenner, Virchow, McDowell, Sims, Roux, Daguerre, Roentgen. Sometimes these noble branches bear rich fruit but at the wrong season.

The world is not ready; the fruit dies. Fortunately, at the time of which I write, the medical world was blindly but eagerly feeling out a way to go forward and just at this time the magnificent Pasteur turned the key in the lock and showed us how a little microscopic speck of life had held the door against the whole medical world for centuries.

To understand conditions, let us go back 50 or 60 years. To open the skull or even to lift a spicule of bone meant infection if not death. When, having wiped our knives with a perfectly clean cloth, we enucleated cancers of the breast, but, keeping a safe distance from the axilla, one-third of them never passed the fifth day period. Spencer Wells almost got discouraged when 50 per cent of his ovariectomy patients died. In Paris, troughs were most ingeniously applied to carry off the pus from amputations.

You can imagine with what horror I look back at my despair, when the hollow eyes, the sweat, the flickering pulse told me that the poor creatures, with appendicitis, intussusception, intestinal obstruction, cholecystitis, tubal pregnancy, or abdominal abscess (all branded as "inflammation of the bowels") were slipping to the eternal through my helpless fingers; mourned but unwittingly sacrificed. A chalk-white face and a pool of blood under the bed confirmed the diagnosis of myomatous uterus; and we gave ergot. The expected pus seldom failed us, but we thanked God if it was laudable.

It is true that some of us were more cleanly than others. We couldn't help that—our mothers varied. Some washed their patients, their hands and their instruments mainly because of acquired characteristics. Their results to be sure were better than those who were less near godliness, but all fell short of grasping the reason why. Then as now the surgeon lifted up his voice in glorifying the wonders of his art. And yet he had reason. He had done the very best he could without that one single conception that suddenly gave birth to a new surgery, *the reason of infection.*

*Read before the Minneapolis Surgical Society, May 4, 1923.

Before anesthesia, patients only half asleep with opium disliked long operations. Naturally, the older surgeons had cultivated speed. It saved blood and pain. Come back with me before 1870 to the old operating room in Bellevue Hospital in New York. The operation is to be an amputation of the thigh. The students are sitting around the room, leaving a space about ten feet square for the operation and betting on the probable time the operation would take. The patient is brought in, his night shirt is pulled up out of the way, his legs project from the end of the table, an attendant holds up each stockinged foot. The professor, in dress suit and spotless cuffs, breezes in, the watches of the students come out. (Here I want to assure you that the history of the case, the pathology, the anatomy were clearly and concisely stated.) The tourniquet is applied, an assistant grasps the thigh, the surgeon picks up the long catlin, he reaches under and over the limb, the time is taken, there is a convulsive shrinking of the patient as the catlin whirls around the thigh reaching the bone in one sweep, and then, flung to the floor, stands quivering with its point fast in the wood. The retracting bandage is applied, the saw grates through the bone, the attendant drops the leg, the students cheer, the professor bows and the time is in dispute as to twenty-one or twenty-two seconds. And yet after anesthesia was fairly well learned these same men exhibited an anatomical precision and delicacy of dissection that can never be excelled.

The merits of chloroform and ether were discussed for thirty years and after ether gained the lead it took years to reach the simple present-day method of administration. At first the ever-present asphyxia varied from the mild to the profound. While there was no doubt about the deep anesthesia, the color index ran from dark blue to black, and too often the color stayed while the patient departed. As I remember the figures, deaths from chloroform were about one to two thousand, while ether stood at one to thirty-five hundred, to say nothing of the many modestly unreported.

But there were unsatisfied, inquisitive minds in those days. They realized infection enough to know that there was an invisible poisoned arrow ready to bar the path to promising fields and they were wise in waiting while they hoped.

When Pasteur held up the nugget one would imagine there would have been a mad rush for the

gold fields. But, NO! there were standpat won't-believers, unbelievers who prayed God to help their unbelief, and caricaturists who tickled the crowd with amusing microbial pictures, the nonchalant germ, in the meantime, sitting tight and saying nothing. A few good men went to their microscopes and knew the truth.

Gradually the good news spread. Lister, with his phenol barrage, blew the hostile aerial host to destruction while the good Lord did what he could to help the poor patient and doctor. No ridicule can touch his after brilliant achievements. How little must have seemed to him his knighthood compared with the hope he had given to all humanity. Lawson Tait, with his hot water and soap, his courage and dexterity, lifted us another step.

The patient Koch came down from his vigils and read the laws which we can never change.

At this period we must yield the leadership to England, Germany and France. England especially as regarding influence upon American practice. Pages would be needed even to catalogue the names of the great teachers and you are expecting a story of events and times, not individuals.

Antisepsis and asepsis had to fight it out. The stumbling futile theories, the ill considered and never carried out formulæ, the unreasonable excursions in fruitless experimentations were all but a part of development, ludicrous as they now seem. I recall a dear, preprohibition doctor, whom I chanced to detect while I was just ready for an operation, most carefully and gravely scrubbing an ether can, held tight against his unlaundered breast. His explanation was "One cannot be too careful."

During the eighties, it became pretty well proven that we could, with proper care, invade any of the body tissues and cavities without much danger of infection. Then came the great stampede to invade these new territories. A look in at our medical meetings in those days suggested a suspicion that some little operating was being done from a wrong pathological point of view and some perhaps because it could be done and not because it ought to be done. Mounds of gall and kidney stones, breasts unchaperoned by axillary nodes, appendices of all designs and colors artistically arranged on platters, and rows of myomata graded according to size graced our tables, while plates of ovaries needed only the lemon and horseradish to obscure their biologic status. But this is only another example in progression; the useless, the harmful, sink down

by their own gravity and leave the clear super-natant truth.

At any rate, it was a period of great activity. New operations and instruments were being constantly brought forward. The comedy of long articles on some triflingly innocent modification of technique and the tragedy of ill-considered and mischievous suggestions made the picking out of good work arduous, though worth while. We soon learned that a quicker way was to identify the author before reading the title of his paper. The gleam of polished nickel dazzled our minds as well as our eyes. A new form of scissors or drainage tube commanded attention, a new retractor or electrode graded a little higher, while to attain real prominence one must have invented an orificial speculum, vaginal preferred. We soon got the habit of waiting for the invariable assurance of the inventor that the last instrument presented was vastly superior to all its predecessors, and then came the labor and expense of trying them out and discarding the majority.

In this period pathology followed rather than directed a great deal of the surgery. The surgeons saw for the first time, especially in the abdomen, the pathology in situ and in the living body.

Virchow had to tease his tissues or cut his sections with the razor. After 1870, the microtome, celloidin and paraffin imbedding and the use of the aniline dyes were worked out. What years of labor and experiment, what successes and failures, what energy and patience! Our laboratories now teach in one year what we plodded through for thirty.

One reason why the work of the surgeon during this period was more difficult than now, was that diseases were more advanced, and, in the breast, bones and abdomen, the growths were larger and complication more frequent, before coming to operation. The public did not know what could be done or when and the doctor was just learning—cancers of the breast firmly attached, immense sarcomata of the bones, myomata 10 to 14 inches in diameter and ovarian cysts holding gallons of fluid were rather common. In the work of others, as well as my own, I have seen a number of ovarian tumors whose weight was more than one-half of the total weight of the woman.

Another hardship was the very excusable prejudice of the public against hospitals. While an inconvenience to the surgeon, this was in some degree a life-saver to the patient. Infection in one

patient was cultured in the next. The surgeon took the fee in one hand, but carried contamination in both. To escape alive was a hope, not an expectation. The hospital to the frightened patient seemed only a painful delay on the way to the morgue, and his judgment was pretty nearly correct. The result was that hospitals were few. In this city, for several years after Father Knickerbocker founded the old Cottage Hospital (now St. Barnabas), there were only six available hospital beds. The only possible place to operate was, of course, where the patient happened to be. The exquisite septic conditions in some of these places may be imagined. The kitchen table, cooking utensils, the linen from the beds all contributed. Dogs and goats and, in one instance, a profane parrot have witnessed my operations, and cats and chickens have stolen my pathological specimens.

There being practically no hospitals, emergency cases must wait for the surgeon. No telephones, poor roads, drifted snow, the slow, tired horse with miles perhaps on foot for the doctor made for fatal delays. The poor doctor may be forgiven if he could not always make the alcoholic stimulant he was carrying to the patient hold out until he arrived at the bedside.

How would the surgeon of today enjoy assuming the care of compound fractures, kidney tuberculosis, appendicitis, brain and abdominal tumors, etc., without sterilizers, without modern artery forceps, with absolutely no electrical apparatus of any kind, without absorbable ligatures, suitable retractors and needle holders and without the diagnostic advantages of the x-ray, the frozen section, blood count, the Wassermann test, the estimation of hemoglobin and kidney function, blood-pressure, basal metabolism and at the same time blot from his intelligence any suspicion of any infective bacterial organism? You see why the ablest of the men before the era of surgical renaissance could not, and dared not, do what now you approach with confidence and an easy conscience. This is not an overpainted picture of the field where these old strong heads and courageous hearts labored. You may thank the God of healing that "time and manners" have changed.

While congratulating ourselves upon our present happy state, are we on much firmer ground than our forbears? Is it beyond reason that there are still undiscovered forces in nature which are to be sought out and made to help the healing art? Upon what procedures are we entirely agreed? For what have

we a definite standard? What is the meaning of all the discussion about gastric and duodenal ulcer, drainage of the gall-bladder or excision, abdominal drainage, splenectomy, cancer and radium, open treatment of fractures, anesthesia and the hundred and one other questions that fill our journals and enliven our societies, unless it is that we are only in the foothills and a long, long way from the summit. To learn is man's perpetual franchise. The forgotten things of the past are useless, its only value is in its few unforgotten treasures, and one generation can transmit only a minimum of its experience to the next. The upgrade is heavy and tiresome and this brings me to the real intention of this paper, which is to present the devotion, strength, courage, and persistence of the fathers in the past generation, in such a way that you will respect their labors, take heart, keep the faith and make the grade.

TUBERCULOUS ENTEROCOLITIS

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In a recent paper I discussed the diagnosis of tuberculous enterocolitis, and came to the conclusion that the fundamental principle in diagnosis depended on interpretation of symptoms, signs and laboratory findings, and the general consideration of probability as applied to the tuberculous individual. The diagnosis of tuberculosis is made largely on circumstantial evidence which has been collected from the history of the ailment itself, the examination of the patient, and the laboratory data afforded. The special methods at our disposal are: (1) direct examination through the proctoscope; (2) the study of material collected at the proctoscopic examination; (3) the examination of the stools, which is especially valuable in cases of healed or latent pulmonary disease in which the sputum is negative, or in which there is no demonstrable pulmonary disease; (4) the examination of the stools for evidence of ulceration, as in other ulcerative conditions; (5) the very definite and accurate observations of the roentgenologists; in view of the frequency with which the intestine is affected, and the absence of symptoms, or their confusing character, such an examination assumes proportions of greatest worth, and is desirable in all

cases of pulmonary tuberculosis; and (6) microscopic examination of tissue removed by the surgeon in operations performed from choice when the diagnosis is certain, or when advisable because of severity of symptoms, or when an opinion can not be given with certainty.

Following these methods of examination, fifty cases have recently been studied in the Mayo Clinic. Seventeen were studied at necropsy, and thirty-three were treated surgically. Not only signs and symptoms dealing with the bowel alone were taken into consideration, but also those affecting the fundamental functions of the body. In this way, the effect of the tuberculous infection itself was evidenced, and the alterations from normal of fundamental functions, such as heart beat and blood pressure, were considered.

The whole series was divisible into sub-groups, comprising (1) cases in which clinical and laboratory findings were positive for pulmonary involvement, or suspect cases in which roentgen-ray findings were positive, or cases which were negative clinically, and yet had positive roentgen-ray findings (these were considered together because there were demonstrable pulmonary lesions in all), and (2) cases in which there was neither clinical nor laboratory evidence of pulmonary tuberculosis. Group 1 will be designated here as "positive," and Group 2 as "negative."

CONSTITUTIONAL SYMPTOMS

The constitutional symptoms of tuberculosis, depending, as they do, on the interchange of tissue fluids from the diseased area to the blood and lymph streams, should not be materially changed, regardless of the area that is affected by the morbid process. Krause, in writing on this subject, recounts some interesting observations made eleven years before, showing that the intoxication depends on tissue fluid interchange, and also that the absorption of normal tissue juices from other animals is extremely toxic. He believes that his experimental work proves "that any tissue material, if in proper physical condition, and if put into the circulation in large enough amount, in a given time, will poison an animal," and, "that the intoxication of tuberculosis, in the natural etiology of the infection, is in large measure a non-specific process both by the absorption of material found in amounts large enough to produce symptoms and that in by far the greatest number of infections physiological communication between the foci and the enveloping

structure is through the medium of tissue lymph." Such a conception necessitates the supposition that there is not only physiologic activity in the tissue surrounding the foci, but that the foci themselves are pathologically active. Many of the patients in the group reported here had been in apparent good health until within a few months of the illness which brought them to our notice, and one can not help but believe that the acuteness of their constitutional symptoms meant either reinfection from an old focus, or an infection acutely active, or rapidly passing beyond its original barriers.

INCIDENCE

The males outnumbered the females more than two to one, and the largest number of patients in any one decade were between thirty and forty years (Table 1). This is in keeping with the view of pathologists who believe that intestinal involvement is a late manifestation of the infection.

TABLE 1

DISTRIBUTION OF CASES BY AGE AND SEX

Years	Cases	Males	Females
10 to 20	4	3	1
21 to 30	11	8	3
31 to 40	20	13	7
41 to 50	7	6	1
51 to 60	7	4	3
61 to 70	1	1	—
Total	50	35	15

FINDINGS AT EXAMINATION

Pulse rate.—There was not sufficient alteration in the pulse rates to warrant the belief that the disease in the lung has any greater influence on the heart beat than in cases in which there is intestinal infection alone. From the pulse record, we were able to observe that in twenty-seven cases it was above the normal for temperature, if one considers that the pulse rate is increased ten beats for each degree of rise in temperature. In only three was it below normal; in twelve it was normal, and in eight it varied from time to time. The pulse rate was similar to that in cases of tuberculosis elsewhere in the body, and subject to the well recognized influence of the disease itself (Table 2).

Physical and roentgenologic findings.—The accuracy of the physical examination was checked, to be sure that the observations on fundamental functions could be depended on. The physical examination of the lungs gave positive evidence of pulmonary disease in eighteen cases; the roentgeno-

TABLE 2

PULSE RECORD, BY AGE

Age years	Average pulse, all cases	Positive group, average pulse	Negative group, average pulse
10 to 20	91	93	99
21 to 30	101	104	100
31 to 40	87	85	92
41 to 50	86	89	90
51 to 60	92	89	90
61 to 70	108	108	—

grams were positive in seventeen, and suggestive in one. The physical examination was negative in seventeen cases; the roentgenograms were negative in thirteen, and positive in three; it was not made in one. The physical examination aroused suspicion in eleven cases; the roentgenograms were positive in two of these, negative in two cases, and suspicious in four; in three cases they were not made. Because of the conditions under which the patient entered the Clinic, and the severity of the illness, there was no record of the physical examination, or of roentgenograms, in five cases. This total gives a record of fifty-one cases, but one is listed twice because the physical examination changed from negative to positive, while the patient was under observation.

Blood counts.—The condition of the blood is shown in Table 3. The average hemoglobin in the "positive" group was 66 per cent, the average erythrocytes 4,150,000, and the average leukocytes 8,797. The average hemoglobin in the "negative"

TABLE 3

BLOOD COUNTS

Hemoglobin	(Dare)	Erythrocytes	Leukocytes
Per cent	Cases	Cases	Cases
30	1	2,000,000	1
40	3	3,000,000	12
50	8	4,000,000	25
60	18	5,000,000	3
70	14	—	7,000
80	5	—	8,000
Per cent	—	—	9,000
Lowest	30	Lowest	2,700,000
Highest	85	Highest	5,400,000
Average	65	Average	4,460,000
—	—	—	13,000
—	—	—	14,000
—	—	—	17,000
—	—	—	19,000
—	—	—	Highest
—	—	—	Lowest
—	—	—	Average

group was 65 per cent, the average erythrocytes 4,190,000, and the average leukocytes 9,500. It will be seen that the average blood count varies but little, whether it is computed separately for the positive and the negative groups, or for the two groups together. Brown, in his study, found 9,950 leukocytes in incipient cases in males, 9,637 in the advanced cases in males, 8,485 in the incipient cases in females, and 9,744 in the advanced cases in females. The Mayo Clinic records agree almost exactly with Brown's. The figures for hemoglobin, however, are essentially different, probably due to the fact that the Dare hemoglobinometer was used in the Clinic, while Brown used the Tallquist scale, as a rule, and the von Fleischl apparatus in a few cases. Accordingly, Brown's readings are much higher, averaging from 88.2 to 91 per cent. The erythrocytes numbered more than 5,000,000 in his cases. The fact that his patients all had pulmonary trouble, while in my series more than one organ was involved, should not make any difference. The probable cause of the difference is that Brown's patients were in sanitariums under rest, discipline and dietetic care, while in my series the patients were such as the general practitioner meets; they had not been hospitalized previous to their examination at the Clinic.

Blood pressure.—It is well known that the blood pressure of tuberculous patients is lower than normal. This has been brought out in several papers by Sewall, who has called attention also to a variation in the blood pressure when the position of the patient is changed from the recumbent to the erect posture. Such blood pressure variations have appealed to Sewall as a reliable method of determining the vitality of the patient, and he feels sure that this variation occurs in asthenia, in occult tuberculosis, and may be the result of focal infection which, symptomatically, may closely resemble active tuberculous infection. In the series studied, we do not have records of the readings taken in various postures, but the blood pressure was uniformly low, regardless of whether the patient had pulmonary tuberculosis or intestinal tuberculosis alone, or both. The blood pressure according to the age of patients in both the positive and the negative group is shown in Table 4. Comparing the averages, and omitting the erroneous reading and that of the case of Addison's disease, a uniformity is again demonstrated, which would tend to show that the effect on blood pressure is the effect of

TABLE 4
BLOOD PRESSURE*

Cases with positive findings of pulmonary infection				
		Highest	Lowest	Average
		125/90	92/52	109/72
Cases with no evidence of pulmonary infection				
		Highest	Lowest	Average
		160/90	86/58	114/76
According to age of patients				
Cases	Age, years	Highest	Lowest	Average
4	10 to 20	120/90	110/64	115/74
11	21 to 30	120/70	86/58	105/62
20	31 to 40	139/90	96/50	114/76
7	41 to 50	120/80	88/66	105/73
7	51 to 60	160/90	90/65	119/74
1	61 to 70	100/60		100/60

tuberculosis on the organism as a whole, rather than on the particular organ diseased.

Weight.—In considering the effect of tuberculosis on the weight of patients, it was found that four had normal weight, one had gained weight, thirty-five had lost weight, two were emaciated, and eight did not know their previous weight, so that no percentage of loss or gain could be estimated. Of the eight patients whose loss or gain was not known, two could not have been materially reduced, since one weighed 225 pounds, and the other 180 pounds. It was found, as might have been expected, that the percentage of weight loss varied with the temperature of the patient, but did not seem to vary to such a marked extent with the length of time from which the patient dated his illness. As a rule, fever and weight give much information concerning the progress and also the prognosis of the disease; they represent the progressive pathologic change from its beginning to its end. The percentage of loss of weight, the interval elapsing between the weights compared, and the temperature are shown in Table 5. In this group, the lowest percentage of loss was 3, and the highest 33, per cent of the body weight, with an average loss of 16 per cent; the interval varied from three months to four years. Norris says: "The amount of weight loss in pulmonary disease varies with the severity of the infection; in acute types of disease, the loss may amount to one-third of the patient's weight." This corresponds almost exactly to my observations, which apply to pulmonary and intestinal disease, and to intestinal disease alone.

*There is one case of evident error with a reading of 150 systolic and 124 diastolic, and one patient was in shock, having Addison's disease, and a blood pressure of 60 systolic and 40 diastolic.

In cases in which it was possible to compare the relation of the loss of weight to the condition of the bowels, it was found that the eleven patients with constipation had lost on an average 15 per cent; nine patients with diarrhea, one of whom was emaciated, had lost on an average 18 per cent; three patients with alternating diarrhea and constipation had lost on an average 17 per cent, twelve patients whose bowels were either normal, or who had no complaint, had lost on an average 15 per cent, and two patients who had a history of having passed tarry stools had lost on an average 30 per cent. It will be observed that no great variation in loss of weight could be demonstrated, regardless of the condition of the bowel.

Primary intestinal tuberculosis.—Primary disease of the bowel in adults is rare. Intestinal tuber-

culosis usually follows primary involvement of the lung, but in this group there were twelve cases in which the physical examination and the roentgenograms of the chest were negative. Further examination failed to reveal a primary location in seven (14 per cent), although abdominal operations were performed in eleven cases, and necropsy in four. No sufficient explanation has been found to cover this high percentage of primary intestinal disease. The suggestion that these patients come from a country in which only in recent years animals have been examined for tuberculosis, might have a bearing on these data. This recalls the theory of von Behring, that tuberculosis may primarily be due to ingestion, rather than to respiration of the infection, and it is possible that many of these patients may have been primarily infected through the intestinal tract, and that the disease had remained dormant over a varying number of years. Holt, in speaking of such a premise, believes that although it has been asserted that the germ may pass the mucous membrane without damage, evidence of disease will remain, if the glands have been secondarily affected. "Tubercle bacilli entering the alimentary tract rarely cause lesions of the gastric mucous membrane, or through it reach the lymphatic circulation. In the intestines, however, more favorable conditions exist. It is possible for the bacilli to reach the mesenteric lymph nodes without causing disease of the intestinal mucous membrane, but I believe it to be exceedingly rare; for by careful search I have seldom failed to find intestinal ulceration where the lymph nodes were manifestly tuberculous." Since it has become the practice to test cattle, doubtless in the future the number of persons with tuberculosis will be reduced, and further study will fail to reveal so large a percentage of cases of tuberculosis primary in the intestine.

Intestinal complications; perforation.—Stengel divides tuberculosis of the intestines into three groups: ulcerative, stenotic, and chronic hyperplastic. The large percentage of cases in my series were ulcerative in type, but in five cases, strictures were discovered, in five evidence of obstruction was found, and in three perforation. Fenwick and Dodwell believe that perforation is rather common, quite as common as it is in cases of typhoid fever. They quote Orth as authority for the statement that the appendix is a favored spot for tuberculous disease and for perforation, and that such a perforation is very apt to be followed by the formation of

TABLE 5
VARIATION OF WEIGHT WITH TEMPERATURE

Percentage	Interval between weights compared, months	Temperature
10	1	99
7	1	99
3	Unknown	97.6
7	Unknown	99
27	Unknown	93.4
14	43	99
11	12	99
20	3	100.8
11	10	98.4
14	Unknown	93.2
28	43	99.4
16	3	101
25	12	Not stated
22	12	96.6
14	12	98
9	2	98
14	6	99.3
25	3	101
5	Unknown	Not stated
21	5	101.3
14	9	99 to 101.5
33	18	100
14	4	98
20	8	93
27	2	98.6
8	1	100
8	9	93
20	43	99
11	8	93
7	Unknown	99.4
19	3	Not stated
12	8	Not stated
20	Unknown	99.6

a local abscess and subsequent fistula. Observation has shown that a fistula following operation for appendicitis should always be investigated bacteriologically, particularly for tuberculosis bacilli and for actinomycosis. Sulphur bodies were demonstrated in six cases of abdominal fistulas in our service in the Clinic within the past year, and the tuberculosis bacillus has been found in a few instances. The examination of such fistulas should not be neglected because of the very great bearing on the prognosis to the patient, and the advisability of further operative procedure.

The diagnosis of a fecal abscess according to Fenwick and Dodwell "depends on the observation that, whenever an abdominal swelling, unattended by special symptoms, presents itself during the later stages of chronic phthisis, irregular and ill-defined in outline, immovable on deep inspiration or by pressure with the fingers, tympanitic on light percussion, and dull on deep percussion, with gurgling

and pain on pressure, it will almost certainly prove to be a fecal abscess." The distinction between abscess and the thickening of the cecum that is so common in this type of disease, depends on the fact that in the latter there usually is a tumor which is less distinct in outline, is less painful on pressure, and exhibits little tendency to increase in size. One unusual perforation occurred in a case in which loops of intestines had become approximated by adhesions with a resulting perforation and fistula, and finally perforation of the bladder, so that intestinal gas passed, following micturition. In another instance, not mentioned in the present series, a boy developed glands in the rectum which became so enlarged that they formed a tumor fully 10 cm. in length, finally ruptured through the rectal wall, and the caseous material was passed at stool.

Strictures.—Strictures were found in the rectum, at the base of the appendix, in many locations in the ileum, in the ascending colon and in the ceco-

TABLE 6
CONDITION OF THE INTESTINES

	Alternating constipation and diarrhea		Normal or Constipation		Percentage		Alternating constipation and diarrhea		Normal or Constipation		Percentage
Pain in the abdomen...	4	13	14	14	90	Loss of appetite....	10	1			
Described as cramping or as colic...	1					Sour stomach	10	3			
Cramping		4	5	2		Ascites	1				2
Burning		1	1			Night sweats	1				2
Epigastric		4	1	5		Weakness	2	4	1	14	
Food distress			2			Hemorrhage	2				4
Located in epigastrium				1		Nervousness		2			4
Mid-abdomen				1		Stools, mucus		5	2	14	
Typical appendicitis					1	Blood			1		
Right lower quadrant					5	Melena			1		
Tender abdomen, soreness	3	5	5	1	28	Lesion					
Upper			2			Jejunum			1	1	4
Lower			3			Ileum	3	6	7	11	54
Tumor palpable	1	3	5	5	28	Ileocecal valve			3		6
Right lower quadrant			4			Appendix	2	4	2	2	20
Palpable stricture...			1			Cecum	3	8	12	9	64
Nausea	2		3	3	16	Colon	1	5	3	5	28
Vomiting	3	2	7	4	32	Transverse colon...				4	12
With relief			1			Ascending colon...	6				12
Digestive disturbances	4	10	14	3	62	Descending colon...				1	2
Flatulence		10				Rectum			1	1	4
Gas	4	10	7	1		Glands	1	4	5	3	26
Distention	4	10	2			Fistula	1	1	2		8
Belching	4	10	1			Peritoneum	2	7	1	2	24
Water-brash	4	10		3		Miliary	2	1	1	1	10
Food distress	4	10				Mesentery				1	2
						Fissure in ano.....		1			2
						Tubes		1			2
						Omentum'	1				2

colon. In the first instance, the stricture was palpable and blood and mucus were present in the stool. In the second, a mass was palpable in the ileocecal area, and pain was present during attacks confined to the right lower quadrant, and increased in severity by movement. The strictures in the ileum gave symptoms that were characteristic of appendicitis, although in four instances the appendix had been removed elsewhere. In one case blood and mucus appeared in the stools, and melena and constipation were complained of; in this case an operation had been performed elsewhere, and the tumor found was thought to be carcinoma of the pelvis.

Obstruction.—Obstructions were found in the ileocecal valve in one case, and in the small intestine in four. The symptoms complained of in the first case were typical of appendicitis, but with persistent tenderness and the presence of a small tumor. In the other cases, tender masses were discovered on examination; there were severe cramps in one instance, simulating gall-bladder disease, and distention, vomiting and constipation were complained of. In one characteristic case there was evidence of gurgling sounds with relief on the passage of gas, fecal vomiting and visible peristalsis.

SYMPTOMS

Archibald believes that certain symptoms are significant of the location of the disease in the bowel. In general, it may be said that if the large bowel is markedly involved and ulcerated, blood in the stool and diarrhea may be expected to occur. In cases affecting the small bowel, but without much involvement of the colon, constipation would naturally be expected, while if both the small and the large bowel are involved, there should be alternating diarrhea and constipation. I was interested to know whether or not a fixed syndrome could be obtained which would direct attention to the location of the disease, particularly because when the clinician believed that only a small area was involved, and a lesion was confirmed by roentgen ray, the surgeon almost invariably found a much wider distribution. Moreover, it is known that in the downward course from the stomach to the ileocecal coil, the number of ulcerations increases, while from this point to the termination of the rectum, it decreases. In most instances, however, both the small and the large bowel are involved (Table 6).

The findings tabulated in Table 6 are not characteristic; the symptoms of bowel trouble do not indicate the location or extent of the lesions. Pain was present in each of the four cases in which alternating constipation and diarrhea appeared. It was described as cramping or as colicky in one instance. Digestive disturbances, consisting of distention, belching, water-brash and food distress, were uniformly complained of, nausea and vomiting were often present. Pain was a symptom in the thirteen cases in which there was diarrhea, and was described as griping, or burning in character; in four of the thirteen, it was located in the epigastrium. Digestive disturbances such as gas distention, belching, food distress and loss of appetite were present in ten of the thirteen. In each of the fourteen cases in which there was constipation, pain was present; it was described as cramping, or burning, or colicky in character, and was located in the epigastrium or mid-abdomen in two cases, and in the rectum in one. Nausea and vomiting appeared in ten of the fourteen cases, and flatulence, gas, distention, belching, loss of appetite and sour stomach were complained of in nearly all. In nineteen cases there was no bowel complaint, and this is the only group in which pain was not present in every case. However, it was present fourteen times, and one patient had had a typical attack of appendicitis; in five cases the pain was in the right lower quadrant, and in five, in the epigastrium. According to Stockton, 1 per cent of all cases of appendicitis are tuberculous in origin. Gas and water-brash were complained of less often in this group than in the others, and nausea and vomiting were complained of in only seven of the nineteen cases. In the cases of alternating diarrhea and constipation, the ileum was involved as often as the cecum. In the cases of diarrhea alone, the ileum and cecum were again affected, and this was true in those cases in which there was constipation, and also in those in which there was no bowel complaint.

It is generally believed that tuberculous enterocolitis is not often associated with tuberculous peritonitis, but in this series there was definite peritonitis in ten cases.

The findings in Table 7 are taken from Logan's series of thirty-six cases of tuberculosis enterocolitis, and are of interest in comparison with the series reported here.

In my series, appendicitis, gall-bladder disease, gastric ulcer, meningitis, pericarditis, peritonitis,

Addison's disease, lupus, bronchopneumonia, obstruction, multiple fistula, and genito-urinary tuberculosis were all observed as complications. In one instance pericarditis, definitely tuberculous, was the cause of the patient's illness, and at necropsy, ulceration of the ileum and cecum was present. Since the clinical examination did not show evidence in sixteen cases of the severe condition, roentgenograms of the bowel were not taken. This illustrates how often serious pathologic change may be progressing in the intestine without producing symptoms which would direct attention to the abdomen. However, a lesion was found in twenty-eight of the thirty-four cases in which roentgenograms were taken. In the roentgen-ray examination of the colon, as Carman has pointed out, the roentgenologist, not knowing the clinical history or findings at clinical examination, should be contented in most instances to make a diagnosis of a lesion in the bowel, rather than to specify its nature.

TABLE 7

FINDINGS IN THIRTY-SIX CASES OF TUBERCULOUS ENTEROCOLITIS REPORTED BY LOGAN

Age, years	Per cent	Sex	Cases
20 to 30	30.5	Males	17
30 to 40	33.3	Females	19
40 to 60	30.5		
Duration of symptoms, years		Per cent	
Less than 1		52	
1 to 3		28.9	
4 to 6		11.1	
10		1	
12		1	
20		1	
Symptoms		Per cent	
Alternating constipation and diarrhea.....		11.1	
Diarrhea		16.6	
Nausea		72.2	
Constipation		50	
Vomiting		64	
Onset with acute attack of abdominal pain		50	
Onset with a history resembling appendicitis		50	
Pain			
Present		89	
Absent, 1 case; not noted, 3 cases.			
Character of pain			
Soreness and tenderness.....		18	
Crampy		64	
Not noted in 8 cases.			
Discomfort and symptoms after meals.....		49	
Nervousness in 5 cases			
Gas		58	
Anorexia		58	
Previously operated on elsewhere, 21 cases; no improvement in 20			

CONCLUSIONS

1. The fundamental functions of the body in tuberculosis are apparently affected by the disease itself, and not influenced particularly by the site or area involved.
2. Obstruction or stenosis and perforation are more common in tuberculous enterocolitis than has been believed.
3. There are no characteristic symptoms which will definitely locate in any special area of the bowel.
4. The surgical and necropsy evidence of tuberculous enterocolitis is almost invariably more widespread than the clinician could anticipate.

BIBLIOGRAPHY

1. Archibald, E. W. The surgical treatment of ulcerative intestinal tuberculosis as occurring chiefly in the course of pulmonary tuberculosis. *Canad. Med. Assn. Jour.*, 1920, x, 804-827.
2. Brown, L.: The symptoms of tuberculosis. In: *Ossler's Modern Medicine*. Philadelphia, Lea and Febiger, 1907, iii, pp. 248-326.
3. Carman, R. D.: The roentgen diagnosis of diseases of the alimentary canal. 2 ed. Philadelphia, Saunders, 1920, 676 pp.
4. Fenwick, W. S., and Dodwell, P. R.: Perforation of the intestine in phthisis. *Lancet*, 1892, ii, 133-136; 190-192.
5. Holt, L. E., and Howland, J.: The diseases of infancy and childhood. 7 ed. New York, Appleton, 1917, 1180 pp.
6. Krause, A. K.: Experimental studies on tuberculo-protein hypersensitiveness and their possible applications. *Bull. Johns Hopkins Hosp.*, 1911, xxii, 250-258.
7. Krause, A. K.: Studies in immunity to tuberculosis concerning the general tuberculin reaction. *Jour. Med. Res.*, 1916-1917, xxxvi, 43-50.
8. Krause, A. K.: The constitutional symptoms of tuberculosis. *New York Med. Jour.*, 1922, cxv, 441-445.
9. Lemon, W. S.: The status of present-day methods of examination in the diagnosis of intestinal tuberculosis. *Minnesota Med.*, 1923, vi, 300-305.
10. Logan, A. H.: Personal communication.
11. Norris, G. W., and Landis, H. R. M.: Diseases of the chest. Philadelphia, Saunders, 1918, 782 pp.
12. Sewall, H.: On the clinical significance of postural changes in the blood-pressure and the secondary waves of arterial blood-pressures. *Am. Jour. Med. Sc.*, 1919, clviii, 786-816.
13. Sewall, H.: On occult tuberculosis. *Am. Rev. Tuberc.*, 1919-1920, iii, 665-682.
14. Stengel, A.: Tuberculosis of the intestines. In: *Ossler's Modern Medicine*. Philadelphia, Lea and Febiger, 1908, v, 434-438.
15. Stockton, C. G.: Diseases of the intestines. In: *Oxford Medicine*, 1921, iii, 173-301.

THE NEM SYSTEM OF FEEDING

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The most beneficial result of the war in the field of pediatrics was the new feeding system of Professor Pirquet, or the so-called "Nem System." Before the war little attention was given to the nourishment of the healthy adult. This was left for the patient himself to decide. The physicians interested themselves largely in nutritional problems, in kidney, stomach and metabolic diseases, and these more from a qualitative than a quantitative standpoint; they considered only roughly the quantitative side of feeding in fattening and reducing cures. This carelessness was due to the comparative cheapness of food.

The war with its attendant high prices of food in Europe brought an interesting study of the nutritive value of every food and resulted in an attempt at making a method of listing food values which would be so simple as to be appreciated by the general public, and the average practitioner. We must thank the members of the Pirquet School for their system, which will probably revolutionize the system of infant feeding, and make scientific feeding as simple as unscientific feeding.

The two main divisions of the Pirquet system are:

1. The substitution for the calorie of a more comprehensible physiologic unit—the milk unit.
2. The measuring of the daily food need, with the sitting height as an index.

The Nutritive Value of Foodstuffs.—Experience has shown that the caloric system—hitherto employed in the calculating of nutritive value of foodstuffs—is, despite its being of highest scientific value, too complicated and too apt to be purely theoretical to be readily applicable in every-day use. To overcome this difficulty, Professor Pirquet has worked out a system which is based on a comparison of the nutritive value of a certain quantity of any foodstuff with a quantity of milk. Instead of using the calorie, which is the amount of food necessary to raise one gram of water one degree C., Professor Pirquet uses milk containing 667 calories to the quart as a standard, and calls one gram of this milk *the unit of nutrition*, and terms it "nem,"

this being the abbreviation of Nutrient-Element-Milk. By this simple unit he makes the measurement of food a living problem. No longer need one think of food as a physiological chemical problem, or of producing the amount of heat that will raise a specific amount of water a definite number of degrees. Instead of this, from now on we need only think of food in a definite, visible, tangible, serviceable unit. From now on, if we tell a mother a child needs 500 nems of food, she no longer needs to be a physiological chemist. All she needs to do is to picture before her mind's eye 500 c.c. of milk or its equivalent.

Corresponding to the metric system of weights to which:

10 grams equal.....	1 dekagram
100 grams equal.....	1 hectogram
1000 grams equal.....	1 kilogram

Professor Pirquet calls

10 nems.....	1 dn (dekanem)
100 nems.....	1 hn (hectonem)
1000 nems.....	1 kn (kilonem)

Therefore, as one liter or quart of milk weighs about 1000 gms., it has the nutritive value of 1000 nems, of 100 dekanem or 10 hectonem, or 1 kilonem. In comparing the nutritive value of 1 gm. of any foodstuff with that quantity of milk which corresponds to it in nutritive value, and expressing the results in the new nem terminology, we derive the following table:

For example, the nutritive value of:

1 gm. of sugar	6 nems
1 gm. of flour	5 nems
1 gm. of potato	1.25 nems
1 gm. of butter	12 nems
1 gm. of lard	13 nems
1 gm. of sauerkraut	0.30 nem
1 gm. of fresh fruit	0.67 nem, etc.

If we wish to compare the nem with the caloric system, we must remember that 1 nem equals two-thirds of a calorie or 1.5 nem equals 1 calorie, and therefore we can rapidly transpose the caloric value of food to the nem value, if perchance we do not recall its nem value.

The milk is, according to the nem system, also used as a *unit of concentration*. Foods having equal nem value for the same quantity are called equal nourishment or Co₁. Foods having twice the nem value in comparison to the same quantity of milk

are called double nourishment or Co₂. Foods which have one-half as many nems in the same quantity of milk are called one-half nourishment or Co_{1.5}. As an example, milk, with 17 per cent sugar, having 2 nems per c.c. would be double nourishment:

100 c.c. milk equals 100 nems
17 gms. sugar equals 100 nems

100 gms. mixture equals 200 nems (double nourishment)

Also a cereal composed of 130 gms. milk, 8 gms. Farina, and 5 gms. sugar would also be double nourishment, if boiled down to 100 c.c.:

130 gms. milk—equals 130 nems
8 gms. Farina—equals 40 nems
5 gms. sugar—equals 30 nems

Boiled down to 100 c.c. equals 200 nems (double nourishment)

As an example of equal nourishment I would give undiluted milk, or one-half milk plus eight per cent sugar:

100 c.c. milk equals 100 nems
100 c.c. water equals 000 nems
17 gms. sugar equals 100 nems

200 c.c. mixture equals 200 nems (equal nourishment)

Or, a dish prepared from spinach consisting of
70 gms. spinach equals 28 nems
3 gms. butter equals 36 nems
34 gms. of milk equals 34 nems

100 gms. equals 100 nems (equal nourishment)

Therefore, by making all of our mixtures and food preparations in multiples, or fractions of milk value, the amount of such foods needed in a dietary can be rapidly determined.

Milk is a good example of the unit of concentration required for the human infant. Experience has shown us that the water contents of milk, or the concentration of milk is the proper composition to sustain life and cause infant growth.

The Pirquet Clinic has demonstrated that infants in the first half year, although doing best on Concentration 1 (the normal concentration of milk), and sometimes on Concentration 1.5 to 2, will suffer seriously on Concentration 3 or 4.

After the first year, Concentration 3 can be used for a month or two, but Concentration 4 will be

fatal. Low concentrations as the old-fashioned one-third and one-fourth milk mixtures are unnecessary and unphysiologic and cause excessive activity in the infant urinary apparatus.

All food is divided into two main divisions—"structural units" and "fuel units."

As pure "fuel units," fats and carbohydrates are the main source of supply. They are consumed in the cells and make power and heat. By this process power and energy, which are necessary to the maintenance of the daily body functions, are supplied. The work of the muscles, the breathing, maintaining of the circulation and the production of normal temperature are only possible by the addition of such food substances.

The proteids are our main "structural units." They can to some extent replace the fuel units, but the fuel units can never replace the structural units. The functions of structural units or proteids are the building of body cells, the replacement of destroyed cells, the formation of digestive juices, and so forth. The question of how large the daily need of proteids (the albumin minimum) is has caused considerable discussion. If we go below a certain limit we get severe disturbances which in the young child manifest themselves by considerable diminution in growth. Experiments done on animals show that if the proteid minimum is passed we get disturbances in the carbohydrate metabolism, only a part of the carbohydrates being then utilized, the remainder being eliminated.

In this question of "albumin minimum," mother's milk again stands as a unit. According to the Pirquet school the amount of albumin present in breast milk (10 per cent of nem value) represents the optimum, as evidenced by the fact that on this food (breast milk) the child doubles its weight in six months and trebles it in a year, showing that breast milk contains the proper amount of the so-called building units. We must presume that the quantity of albumin in mother's milk is the most desirable, as experience has shown us that mother's milk is the ideal nourishment for a growing child. Similarly, in older children and adults, the same proportion of albumin is satisfactory, as shown by the experiments of Chittenden and Hindbede.

Having established that 10 per cent of the nem value of a food in albumin is the optimum, and that just below this is the minimum, Pirquet has determined that the maximum requirement of albumin is about 20 per cent of a nem value of a diet. If

too much albumin is given it must be eliminated through the kidneys as unused urea, and so becomes a burden to the kidneys.

The Measuring of the Daily Food Need with the Sitting Height as an Index.—Within the last years, determinations as to the food requirement have had either the surface or the weight as an index. The surface of the body as an index is probably the more accurate, but is extremely complicated for practical use. Consequently, most authorities at present use the weight as an index to the food requirements. This also has many errors. It is at once evident how indefinite this is when we consider that an infant at birth should get about 100 to 120 calories per kilo of body weight, while an adult receives only 30, showing that weight is far from an index unless also controlled by surface and age and state of nutrition. The error of using weight for an index is also shown by the different caloric requirements of different animals, some requiring 100 calories per kilo, and some 50 calories, or less.

It is assumed that the food requirements of children or adults depend more upon the absorption surface of the intestine, which may be called the "nutritive surface." While neither age nor the height of the body are decisive features, since their relation to the nutritive surface is not a constant one, Professor Pirquet has determined that a constant relation does exist between a sitting height, which is always easily measurable, and the nutritive surface of the intestinal tract.

Professor Pirquet has proven that, given the sitting height, the nutritive surface of the intestinal tract can readily be calculated, since the square of the sitting height corresponds to the latter. Researches have shown that the average length of the intestinal tract is ten times the sitting height, also the average breadth of the intestinal tract is $\frac{1}{10}$ of the sitting height; consequently, the nutritive surface of the intestinal tract is the sitting height times 10, multiplied by the sitting height divided by 10, which amounts to the square of the sitting height.

The quantity of food which a normal human being can consume in twenty-four hours, without impairing health, is called *maximum*, or limit of tolerance. The *minimum* is the quantity of food necessary to sustain life while at perfect rest, and the *optimum* would be the ideal twenty-four-hour consumption, taking into consideration age, mode of life and so forth. The *optimum*, of course, varies

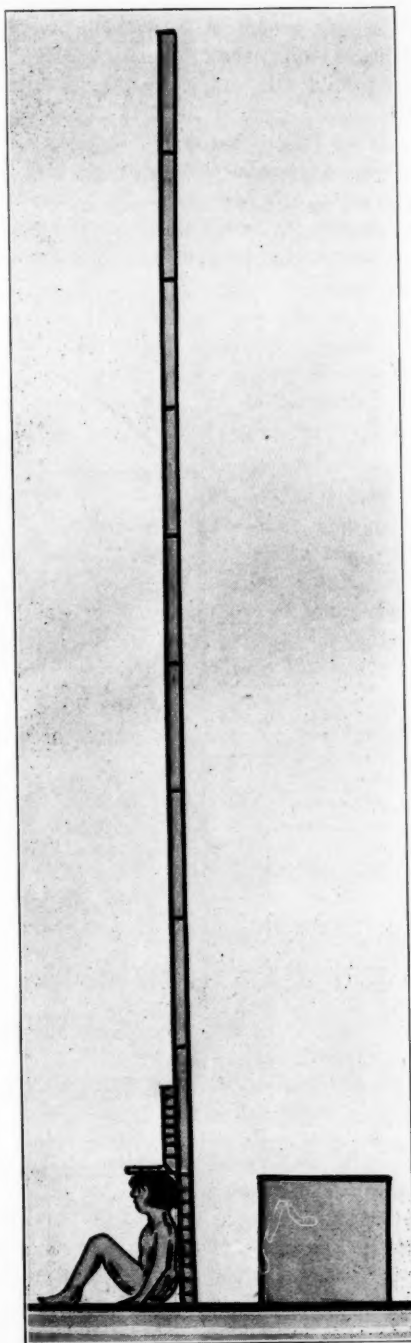


Chart I. Nutritive surface of intestine equals—length, 10 times the sitting height; in breadth, $\frac{1}{10}$ the sitting height—or sitting height squared.

widely, whereas the *maximum* and *minimum* are more or less constant. A laborer will have naturally different requirements from a seamstress, and a growing child will want more food than an aged person.

Professor Pirquet has determined that the *maximum* may be defined as that quantity of milk (measured in grams or a quantity of any foodstuff of the same nutritive or nem value) which corresponds to the number of square centimeters of the nutritive

limit of tolerance can vary considerably. It may sink down to nearly the *minimum*, and in extraordinary circumstances even sink below the *minimum*. Between the *maximum* and *minimum* lies the breadth of tolerance. In this space lies the *optimum*, which, as mentioned before, varies, depending upon two factors: (1) the physical condition of the patient; (2) the amount of work the patient has to do.

In feeding a new-born, we can, according to



Chart II

surface. In other words, the square of the sitting height equals the *maximum*. As an example, a child who has a sitting height of 30 cm. would have a nutritional surface of 900 sq. cm. and might therefore take 900 nem or 900 gm. of milk in 24 hours, or a quantity of any foodstuff of the same nutritive value.

The *maximum* and *minimum* for each individual, even if not definitely fixed, still have quite definite borders. In diseased conditions the *maximum* or

Professor Schick, proceed as follows: On the first day, after six hours sleep and rest, give one-tenth sitting height squared ("SH²"); second day two-tenths, third day three-tenths, fourth day four-tenths SH², and from the fifth day on remain at five-tenths. If insufficient breast milk is present, a part of the breast milk can be replaced by breast milk plus 17 per cent sugar or cow's milk plus 17 per cent sugar, as double nourishment. If no breast milk is present we can use equal nourishment of

MAXIMUM

			10
			9
			8
			7
	Sitting 1/10 sig.		6
	Motion 1/10 sig.		5
	Fat 1/10 sig.		4
	Growth 1/10 sig.		3
	{ Existence		2
	{ Minimum		1
	{ 3/10 sig.		1

CHART FOR NURLINGS (UNDER 1 YEAR)

Chart III

one-half milk and 8 per cent sugar or double nourishment of full milk and 17 per cent sugar. The infant can remain on five-tenths of the sitting height squared until the end of the second month. At this time the child begins to have active use of his musculature and consequently his food need rises. Therefore a child from the third month needs six-tenths of the square of the sitting height. Beginning with the seventh month, due to the powerful muscular activity required in the attempt at sitting and standing, we must increase his food to seven-tenths of the sitting height squared. From this time on there is no change during the first year of life. These rules are naturally schematic and must be occasionally modified by the appetite, digestion and the general course of the weight curve.

To infants after the first year and school children, we give as a rule seven-tenths to eight-tenths of the sitting height squared, because of their extreme activity. These children generally do very well on this quantity.

Adults with an occupation requiring little exertion do well on five-tenths of sitting height squared, but may need more, depending upon the amount of muscular energy involved. In severe muscular exertion an individual may need as high as ten-tenths sitting height squared.

MAXIMUM

		10
		9
		8
	Active Motion and Play 1/10 sig.	7
	Standing 1/10 sig.	6
	Sitting 1/10 sig.	5
	Fat 1/10 sig.	4
	Growth 1/10 sig.	3
	{ Existence	2
	{ Minimum	1
	{ 3/10 sig.	1

CHILDREN AFTER FIRST YEAR OF LIFE

Chart IV

The Pirquet school has also made a study of the requirements of a nursing mother. Professor Schick has shown that for every 100 nems of milk produced by the mother, 150 nems nourishment is utilized. As an example, if a child nurses 1,000 gms. of milk, the mother will need 1,500 nems in addition to her usual diet. Consequently, as the average woman needs 3,000 nems a day and the average child takes about 1,000 nems of milk a day, the mother will need 3,000 nems for herself, and 1,500 nems extra to produce the 1,000 gms. of milk for her offspring—that is, 4,500 nems, or 1.5 times as much as her usual nourishment. Professor Schick has made the following rule for the laity: the mother must add to her daily requirement 50 per cent more for her child.

To more rapidly estimate the food requirements in nems, the following chart will be of great value.

To the left is the number of nems in grams of the corresponding food. To the right the hectonem weight in grams or the number of grams of each food necessary to make 100 nem. Between these two are the different foods grouped for convenience according to their nem value. The number after

MAXIMUM

	10
Different	9
Severe Physical	8
Labor	7
	6
Standing 1/10 sig.	5
Sitting 1/10 sig.	4
{ Existence	3
{ Minimum	2
{ 3/10 sig.	1

CHART FOR OLDER CHILDREN AND ADULTS

Chart V

each food gives the comparative amount of proteids in each food compared to milk as a standard; that is, if followed by the figure 1, it means equal to mother's milk or 10 per cent of the nem value in proteids. If followed by the figure 2, it has twice as much proteids as breast milk, or 20 per cent of its nem value in proteids.

With this chart we can rapidly determine a child's diet and know its nem or nutritive value, its comparative proteid content, and its degree of concentration.

The Pirquet System has the following points in its favor:

1. An attempt to scientifically interest the physi-

cians and public in the accurate feeding of the healthy as well as the sick child.

2. The replacement of the calorie by a simpler unit, the nem, making it possible for the mother, even though lacking in scientific knowledge, to accurately follow out the doctor's orders.

3. The replacement of the other methods of determination of food requirement by the use of the sitting height as an index.

4. A rapid means of determining the proteid content of a diet, using the mother's milk as a unit.

5. Systematic attention to the concentration of the food so that the physician can rapidly prescribe foods of various concentrations as may be indicated in conditions like vomiting, anorexia, bed-wetting, effusions and cardio-renal conditions.

EXAMPLES

Child A. Two months old. Sitting height, 38 cm.

If the child needs the square of the sitting height (s. h.)², his

Maximum—

38 squared or 1,444 nems.

Minimum—

3/10 (s. h.)² or 433 nems.

Optimum—

3/10 (s. h.)² plus

1/10 (s. h.)² for growth plus

1/10 (s. h.)² for fat

5/10 (s. h.)² or 720 nems.

This would be divided proportionately among his number of meals; if he received 5 meals, he would get one-fifth of this quantity at each meal, or 144 nems. This can be given either as 144 c.c. of breast milk or the same quantity of Sibo (a mixture of equal parts of cow's milk and water, plus 8 per cent sugar).

Child B. Five months old. Sitting height 42 cm.

Nem. in one gram	RAW	COOKED	Weight of hn. in grams
13½	Beef dripping 0*, oil, pork, pork dripping		7.5
12	Butter 0, fat 0, marrow 0, margarine 0		8.5
10	Bacon 0.5		10
9	Nuts 1		11
8	Sweet almonds 1		12.5
6¾	Fat sausage 1, chocolate 0		15
6	Cocoa powder 1, heavy cheese 3, sugar 0		16½
5	Condensed milk and sugar 1, cheese moderately heavy 4, fresh fat meat 2, fresh ham 8, yolk of egg 2, rice 1, wheat flour 1, vegetable flour, 1, biscuit 1, zwieback 1, syrup 0, honey 0	Suet puddings 1, fat pastries	20
4.5	Barley 1, shelled millet 1, shelled oats 1		22
4	Dry cheese 5, fat beef 3, blood sausage 1, dry vegetables 2, wheat bread 1		25
3½	Cream 1, bread 1, dry fruit 0.5, dry vegetables 0.5, dry mushrooms 3	Light puddings 1, marmalade 0	30
2.5	Cream cheese 6, fresh moderately fat meat 4, fresh fat fish 4, eggs 3	Cooked lean meat 6	40
2	Evaporated milk 2, lean fresh meat 6	Double nutritive value; fat and vegetables	50
1.5	Horse meat 8, tripe 5	Cooked fish 8	66½
1.25	Fresh lean fish 8, potatoes 0.5		80
1	Mother's milk 1, cow's milk 2, grapes 0.5, green peas 2	Ordinary nutritive value; thick soup	100
0.6	White of egg 9, fresh fruit 0.5, treacle 0	Moderately thick soup	150
0.5	Skimmed milk 4, French beans 2, carrots 1	Semi-nutritive value; thin soup 1	200
0.4	Turnips 1, turnip cabbage 1, cauliflower 2, fresh spinach 3, fresh mushrooms 3		250
0.3	Sauerkraut 2		300
0.25	Tomatoes 2, asparagus 2		400
0.2	Lettuce 2, cucumber 2		500
0.1		Meat gravy 3	1000

*This figure gives the approximate amount of albumen contained as compared with milk.

Chart VI

If the child needs the square of the sitting height

his

Maximum—

42 squared or 1,764.

Minimum—

3/10 (s. h.)² or 529 nems.

Optimum—

3/10 (s. h.)² plus

1/10 (s. h.)² for growth plus

1/10 (s. h.)² for fat plus

1/10 (s. h.)² for muscular movement

6/10 (s. h.)² or 1,058 nems.

Therefore, the child would need six-tenths of 1,764 or, roughly speaking, 1,058 nems per day. This would be divided among 5 meals, making it 211 nems per meal, in which case we would give him four feedings of either 210 c.c. of breast milk or its food equivalent in any milk mixture, as for instance Sibio. The fifth meal, which would come during the middle of the day, we will replace by a cereal which, on referring to the chart, you will see is of double concentration. Consequently, that feeding will contain 105 c.c. of cereal.

Child C. Twelve months old. Sitting height, 45 cm.

As the child needs the square of the sitting height his

Maximum—

45 squared or 2,025 nems.

Minimum—

3/10 (s. h.)² or 607 nems.

Optimum—

3/10 (s. h.)² plus

1/10 (s. h.)² for growth plus

1/10 (s. h.)² for fat plus

1/10 (s. h.)² for sitting movement plus

1/10 (s. h.)² for active movement (standing)

7/10 (s. h.)² or 1,417 nems.

Therefore, he would need seven-tenths of 2,025 or about 1,400 nems or 14 hrs.

This can be divided into three main meals of 400 nems each and a lunch in the afternoon of 200 nems.

For breakfast we will give him:

100 c.c. of cereal =200 nems

200 c.c. of milk =200 nems

Total

400 nems

For lunch we will give him

200 gms. of soup =100 nems

100 gms. of vegetables =100 nems

100 gms. of cooked fruit =100 nems

30 gms. of bread =100 nems

Total

400 nems

Two o'clock in the afternoon we give him

200 gms. of milk =200 nems

For supper we give him

150 gms. of cereal =300 nems

100 gms. of milk =100 nems

Total

400 nems

Total of entire day 1,400 nems

By this method one can rapidly estimate an infant's diet, not only in milk but also in solid foods, and be absolutely sure that the proper amount of food value is received. The use of the nem as the unit and the preparing of all foods, liquids and solids as well, in concentrations with mother's milk as the basis, is the key to the simplicity of this method.

There are many other valuable ideas in this system of feeding, but lack of space requires their omission, and the foregoing states what seems best applicable in general practice.

ENCEPHALITIS SIMULATING ACUTE ABDOMINAL CONDITIONS*

ROBERT EMMETT FARR, M.D.

Minneapolis

In view of the fact that little mention is made of the possibility of confusing acute abdominal conditions with encephalitis, it is deemed worth while to report briefly the following three cases which were referred by competent physicians for surgical treatment. The first two simulated acute intestinal obstruction and the third was clinically an acute appendicitis and was operated upon. The problem of diagnosis is best shown by the following summaries:

CASE 1.—Mr. G. E. C., aged 56, male, married, journalist.

*Presented before the Minnesota Academy of Medicine, May 9, 1923.

Past History: Negative except for strangulated inguinal hernia ten years ago which was reduced without operation. Truss was worn for twenty years but was discarded three years ago. No operation or injuries. Habits good. Three children living, none dead. General health good until past year, during which he has been nervous and irritable. He had influenza in 1921.

Present Illness: The patient was admitted to St. Mary's Hospital on Feb. 16, 1922, and referred for operation with a diagnosis of intestinal obstruction. His physician wired me the time that the patient would arrive and asked me to be ready to do an immediate laparotomy. On entering the hospital the patient's history showed that his bowels had been sluggish for several years. He frequently went a week without bowel movement. He would then take magnesium sulphate and get relief. Upon entering, he complained of pain in the lower abdomen, rectal bleeding, anorexia and an inability to have a bowel movement. Sixteen days before admission, after taking a saline enema, he suddenly collapsed and his doctor found a small pulse and low blood pressure at that time. Repeated efforts during the last six or eight days were made to bring about a bowel movement with only slight success. The stools were "polliwog" shaped and the pain was persistent. A few days before entering the hospital the patient began to be somewhat delirious, although he was rational most of the time. He had been worrying a great deal during the past year and little attention was paid to his mental condition. He had vomited once during the last week after taking magnesium sulphate. He had complained of dysuria and the catheter withdrew 350 c.c. He had had no previous bladder trouble. Upon admission his temperature was normal. He was dehydrated, pupils contracted, as he had been taking morphine. Teeth unclean. Tongue dry. Fruity odor to breath. Some rigidity of neck muscles. No lung complications. The pulse was 70. Blood pressure 125-65. No edema. Abdomen was distended and tender but not very rigid. Urine showed hyaline casts, diacetic acid and acetone. A barium clyster showed the colon to fill normally. Laboratory tests were as follows: The blood on admission showed hb. 80 per cent, r.b.c. 5,400,000, and w.b.c. 8,000. A leucocytosis of 15,000 and 21,000 developed during the next two days with a differential of p.m.n. 76 and lymphocytes 24 per cent. On March 4, eighteen days after admission, the differential was p.m.n. 48, lymphocytes 45, eosinophils 3, transitionals 4 per cent. Blood chemistry on admission showed sugar .2 per cent; creatinin 2.2 mgm. per 100 c.c.; urea n. 18 mgm. per 100 c.c. Two days later the blood sugar was .07 per cent, creatinin 2.4 mgm. per 100 c.c. and urea n. 13.3 mgm. per 100 c.c. Van Slyke 56 per cent and no diacetic acid or acetone in urine. The spinal fluid one day after admission was sparkling, under pressure of 120 drops per minute and showed one cell per cu. mm. The blood Wassermann was negative. Blood cultures Feb. 20, Feb. 21 and March 2 were negative. Spinal fluid Wassermann negative. Colloidal gold negative.

As the diagnosis seemed doubtful, an operation was deferred. The patient soon showed marked delirium, so that restraint had to be applied. The rigidity of the neck muscles increased. The patient was given 4,000 c.c. of

saline hypodermically daily. Dr. E. L. Gardner was called in consultation. Encephalitis was suspected; also a possible bacteremia. Neurological findings, except those noted above, were negative for six days after admission, the stools were scanty and several clots of bloody mucus were passed. Bowel movements were involuntary and at times also was urination. The first formed stool was passed eight days after admission. After entering hospital the patient developed a temperature reaching at one time 103° F. with a leukocytosis reaching as high as 25,000. He complained constantly of headache, pains in lower abdomen, back and legs. He was seen by Dr. T. A. Peppard, who suggested x-rays of skull. These were negative. For three weeks the patient presented hallucinations and delusions, was often drowsy and incoherent and almost continually picking at the bed clothes. Ingestion of food usually caused vomiting. He had periods of severe collapse with Cheyne-Stokes respiration and digitalis was administered. Ten days after admission his neurologic findings were more marked, with sluggish knee and right ankle jerks; Babinski present on left; nystagmus of left eye on looking to right. Babinski was still present one week later.

The patient volunteered that everything prior to March 7, 1922, or for about three weeks, was "like a terrible nightmare," but he soon orientated himself, and his convalescence during the following month was uneventful except for several visits by the dentist. The foci were cleared very cautiously and without reaction. He was discharged from the hospital April 5, 1922, forty-six days after admission, with a diagnosis of encephalitis, much improved and has been editing his paper again for over a year.

CASE 2.—Mr. F. P., aged 27, Italian, carpenter, single. Admitted to St. Mary's Hospital with suspected intestinal obstruction and referred February 13, 1923.

Past History: "Rheumatism" for four months while in France with the A. E. F. in 1918, and otitis at eleven years.

Present Complaints: (1) pain in abdomen, (2) no stools for five days, (3) dysuria and frequency associated with voluntary attempt to move bowels, (4) sleeplessness for past three nights.

Present attack began a week before admission with generalized abdominal pain worse in lower abdomen, at times radiating down thigh and not localized in either side. He became definitely worse four days ago. Two days ago he took a large dose of Oleum Ricini and vomiting followed. He kept down a second dose, but had no bowel movement until today, when he passed a very small particle along with a very small amount of flatus. He has vomited on several occasions, but usually after Oleum Ricini or senna tea. The pain in abdomen has kept patient awake for past three nights and he constantly changed position striving to get relief. When first seen at the hospital he was on all fours in bed and doubled up as if in an attack of renal colic.

Previous attack: Three weeks before the present attack, the patient states, he had abdominal pain like the present and bowels did not move for three or four days, but he was relieved by taking Oleum Ricini, which was very effective.

tual then. He has been in the habit of taking some cathartic every few months.

Findings on admission: Temperature 100. Pulse 70. Respiration 20. Physical examination negative except for acetone breath. No abdominal distention. The urine showed glycosuria and diacetic acid and acetone. Operation was deferred. X-ray plates of both kidneys, ureters and bladder were negative. Feb. 13, 1923, a soapsuds enema resulted in the passage of small particles of stool and slight flatus.

Blood sugar 0.1 per cent; Van Slyke 52 per cent; w.b.c. 13,800. The following day the urine was free from sugar and acid bodies. Two soapsuds enemas returned clear and the patient continued to complain of abdominal pain, requiring codein. He was given a barium meal February 15 and fluoroscopic examination of stomach was negative. The meal was followed and found to pass without obstruction by serial plates up to fifty hours, at which time (February 17) the colon was empty, and a formed normal stool passed. Leucocytosis of 18,400 presented February 14, but this dropped to 10,300 the following day and remained normal thereafter.

The patient complained of "pain in his bladder region," of a "heavy feeling in his head" and persisted in getting up without permission and showed other signs of negativism, such as refusing nurses' care or to crowd liquids and on February 19 tried to leave the hospital.

On February 20, a spinal puncture was done and there were two cells per cu. mm. Nonne negative. Wassermann negative. The fluid sparkled and was under no pressure. Within six hours his temperature rose to 103° F., but at the end of twenty-four hours it was again normal. During this time the patient insisted on keeping his face covered and was quite morose. He complained of a headache and was restless. On February 23, ten days after admission, he was irrational and cried a great deal.

On February 24 he was seen in consultation by A. S. Hamilton, who gained additional history of "confusion in vision at one time," but no definite diplopia and an uncertain history of clonic convulsive movements in the right upper groin and of twitching of the eye-balls. When asked how he felt he would say, "As if to die"; "like crazy," or "Oh, Jesus, I don't know how." Neurologically there was slight ptosis of right eye. Patellar and Achilles feebly present only on reinforcement.

Diagnosis: Encephalitis or poliomyelitis.

The patient gradually improved, leaving the hospital without operation on March 4, 1923, nine days after admission and at this writing is again back at his labor and feeling well.

CASE 3.—Mrs. A. G. K., aged 23, and admitted to the hospital on Feb. 28, 1923, and referred by attending physician with a diagnosis of an acute abdomen, either appendicitis or salpingitis.

Past History: General health has always been good except for a "nervous breakdown" several years ago which was of short duration. No children or pregnancies.

Present Illness: On Feb. 26, 1923, two days before ad-

mission to hospital, she awoke at 2 A. M. after an attack of coughing and noted a severe generalized abdominal pain, most marked in the epigastrium. This persisted and during the two days following she vomited several times and was particularly nauseated on getting out of bed. The pain was not of menstrual type, although she has had dysmenorrhea regularly. Her last period, a month before onset of present attack, was normal. Bowels moved the previous day without cathartic or enema and there were no urinary symptoms. Examination on admission showed a well developed and nourished woman, with negative findings except for generalized tenderness of abdomen, a rigid right side and this more marked in the lower right quadrant. Reflexes were normal. Pelvic examination disclosed a moderate leucorrhea, a retroposed uterus and no evidence of tubal pathology. Her temperature was 102.6° and the w.b.c. 16,000. The urine showed a small amount of albumin and a few pus cells as well as granular casts. The blood pressure was 100/80. Cervix smears showed pus cells but no gonococci. She continued to have abdominal pain and this localized over the appendix and quite definitely by the end of the third day and it was thought advisable to allow the "acute appendicitis" to subside before operating. Menstruation occurred at the end of five days and at the end of six days her temperature was normal. At this time her epigastric distress was provoked by an enema and she again vomited and swallowed and belched a good deal of air.

On the seventh day a laparotomy was done and the appendix was found to show very little if any evidence of recent inflammation and the tubes as well were normal. The appendix was removed and the retroposed uterus suspended by the Coffey method of shortening the round ligaments. Uterine curettage disclosed normal uterine mucosa on microscopic examination. Nine days after operation the temperature again arose to 101°F. and to 103°F. four days later with persistent abdominal pains, nausea and vomiting. There was no evidence of a localized abscess. Six days later the temperature was normal, but the patient was found walking in her sleep to the other beds in the hospital or sleeping on the floor. During this time there was a persistent leucocytosis of 16,000, 19,000, 14,000, 11,900 from Feb. 28, 1923, to March 4, and 20,000, 24,000, 25,000, 18,000 from March 17 to March 29. She was discharged March 29, a month after admission.

Three weeks later she complained of inability to flex the right foot, walking with a limp and dragging the great toe. She also complained of a sensation of numbness of this foot. Sensation to sharp and dull, heat and cold and touch was not impaired. Plantar flexion was normal and the patellars were active. With complete rest in a splint this improved and when last seen, May 4, 1923, there was still a tendency to foot-drop and weakness of the flexors, but she was able to do her own housework.

Our impression, therefore, with very meager abdominal findings on actual examination, is that she probably was afflicted with an attack of poliomyelitis giving referred abdominal symptoms and finally manifest by the equally vague symptoms referred to one of her lower extremities.

ENCEPHALITIS LETHARGICA WITH CONSIDERATION OF THE INJECTION OF IODIDE OF SODIUM*

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St. Paul

From 1918 until recently there have occurred only sporadic cases of encephalitis lethargica. This winter, however, it has again assumed an epidemic character. Dr. Hammes estimates that perhaps a thousand cases have occurred in Minnesota. This estimate, I regard as too small. Small epidemics have been observed in different parts of the country. An outbreak of really serious proportions has been reported from Manitoba.¹ There were in Manitoba in January thirty-two cases; in February seventy-five cases (of which sixty-six were in Winnipeg) and thirty-eight cases in March—with a mortality of thirty-five. The outstanding features of the epidemic were: (1) frequency of severe peripheral pain in the beginning; (2) the frequency of myoclonic contraction, at times widespread, at other times local in character; (3) the probable serious and permanent disability of the sufferers in the way of a modified Parkinsonian syndrome.

Until the present recrudescence of the disease the attention of the profession has been centered upon the chronic form, the bizarre disorders of the respiratory rhythm, the bewildering number of physical and mental sequelæ—its latency with a subsequent manifestation after an interval of years of the Parkinson syndrome resembling in this respect the "para" phase of neurosyphilis.

Changes in personality following an attack of encephalitis occur both in children and adults; in the former one sees an intractable insomnia followed by character change with or without emotional outbreaks. Grossman calls attention to increase in weight associated with sluggishness, in children. These children are usually backward in their studies, inactive and drowsy. A lowering of ethical standards, according to Bassoe, may indicate a previous encephalitis. He also states that "there are not only post-encephalitic pseudoparkinsonians but also post-encephalitic pseudoschizophrenics, even pseudomorons."

A vast literature has arisen; it has been estimated that since 1917 nearly 2,000 articles on this subject

have appeared.² In addition there have been four important reviews in book form, notable among which is the investigation just issued by the Association for Research in Nervous and Mental Disease.³ Encephalitis is a definite disease, not a syndrome. The microbe has a minute filterable form; its habitat is the nasopharynx; it is mildly contagious and the incubation period is about ten days. Its etiology is still a matter of controversy; the globoid bodies and the streptococcus have their partisans, but there is no consensus of opinion among research workers as to any exclusive view; until this has been attained, therapy must needs be empirical.

It was the splendid genius of Pasteur that pointed to the cause of hopeless illness: at his word infection no longer paralyzed the skill of the surgeon; no longer did its presence make maternity a deadly peril; "he transformed microbes from an instrument of death into an instrument of preservation." Lethargic encephalitis awaits its Pasteur.

Wechsler's statistical study of 864 case reports is exceedingly interesting. There were three infants of four weeks; one man of 84 years. Males predominated in a ratio of almost three to two. Its incidence among physicians was very high, about sixteen times as frequent as among the average population. In only five instances were two members of the same family affected; to these may be added two hospital internes. Direct transmission is evidently very slight. Perhaps the most noteworthy fact was that among twenty-two pregnant women there were only four deaths. The striking contrast with the high mortality of influenza in pregnancy is very apparent. Bompiana states that pain, psychic disorders, paresthesias and pareses are more pronounced in encephalitic than in non-encephalitic pregnant women; that the mortality is greater in older patients and in multipara than in primipara; that unless the disease causes death there is no interference with pregnancy; and that in fifteen cases there was no abortion. Guillain and Gardin report the delivery of a normal child during the post-encephalitic Parkinsonian state. The condition of the mother was unaffected. Two such cases have been recorded. To Marinesco we are indebted for the interesting observation of a pregnant woman dying of encephalitis after an illness of three weeks. The brain of the fetus showed the typical pathological findings of this disease.⁴

As the influenza epidemic waned in 1918, I observed the first straggling cases of encephalitis in

*Presented before the Minnesota Academy of Medicine, April 11, 1923.

St. Paul. Wynn believes that the influenza weakens the resistance of the persons of the community; that an epidemic of influenza lowers the resistance to the epidemic of encephalitis. According to Wechsler, there are thirty-eight types of epidemic encephalitis. Clinical bewilderment grows correspondingly great. The futility of such an attempt at classification is apparent. Dana states that the dominant thing in classifying this disease is the mid-brain syndrome around which the disease groups itself. The symptoms are due to some trouble with the mid-brain and the motor nerves of the eye, especially the motor functions.

There are many bizarre and atypical forms. One of my patients had been regarded as a general paretic; before his illness he was a keen, capable lawyer; after, he lost all initiative, his mental mechanism was no longer responsive to will. His physician had advised his wife, because of the supposed nature of his disease, to obtain a divorce. Another patient presented a definite schizophrenic reaction. Investigation revealed an encephalitis, not a precox. In still another, in addition to the encephalitis, there developed a general multiple neuritis. Great difficulty may arise in differentiating the mental symptoms occurring in encephalitis from those of the psychoses.

According to the findings of the Association for Research in Nervous and Mental Diseases, the mental symptoms occurring in encephalitis are in the main consistent with those found in organic brain disease. At times the symptoms are very unusual and differ from those observed in other brain diseases. The symptoms are part of an acute organic psychosis and are not to be confused with other psychoses. This Association makes three groups: (1) the frank psychoses; (2) the psycho-neuroses; and (3) the changes in temperament and conduct disorders. Dr. Barker has seen several cases of apparent athero-sclerosis or paresis which turned out to be encephalitis. Dr. Kirby has observed some cases that in the beginning of their illness resembled paresis.

Since the Argyll-Robertson pupil occurs in encephalitis, its differentiation from that seen in lues is a matter of real difficulty. One or two of Grossman's patients had no other evidence of the disease anywhere. In order to clear up the diagnosis one must, he says, take into consideration the general picture and the Wassermann test.

I have recently seen two very interesting atypical

cases. One was an elderly woman who, seven years ago, had, while under our care, made an excellent recovery from manic-depressive insanity; about three weeks ago she again developed the classical symptoms of this disease; suddenly she became stuporous, with cranial nerve involvements and myoclonic twitchings, death occurring within a few days. The second case, referred to us by Dr. Cremer, of Hastings, became acutely disturbed. Her symptoms were typical of an involuntional depression. There was a history, however, in the early stage of her illness, of her eyes turning up and a drooping of the left upper eyelid and also drooping of the left side of the mouth. This was of short duration. All during her illness there has been a slight temperature, which might have been due to the imperative nature of her delusions. The blood sugar and the spinal fluid findings were negative. Her resistiveness made a neurological examination impossible. A later examination of the spinal fluid gave a slight globulin; the leucocyte count was 15,000; there was also a double Kernig with a spasmic rigidity of the neck muscles. There have occurred, within two days, attacks of stupor of hours' duration. The patient's appearance was that of a catatonic stupor. She was image-like, immobile, could not be aroused, looked as if she were dead. The stupor of the English epidemic and similar cases described by Nonne in the Hamburg epidemic, Barker thinks, seemed to belong to this type. The nerve trunks and muscles were very sensitive to pressure, the slightest touch causing her to cry out with pain. Hunter emphasizes peripheral pain as an outstanding feature of the Manitoba epidemic. In these patients is the encephalitis an epiphenomenon or is the mental picture that of an acute organic psychosis?

Dr. Farr's observations on the surgical relations of this disease are of great interest. In a case referred as intestinal obstruction, the bowels had not moved for three days. The abdomen was greatly distended with gas; there was terrific pain but no abdominal rigidity. There were some mental symptoms which later developed into an acute mania followed by lethargy and subsequent recovery. Farr has found that encephalitis may simulate surgical conditions and he states that he has about reached the conclusion "that all suspicious cases that come to us—that is, all cases that are not definitely things that we can nail down as entities, we call encephalitis until they are proven otherwise."

A brief history of a case of the myoclonic type is not without interest. W., aged 59, referred to me by Dr. Hoyt of Glasgow, Montana, retired on the night of January 2nd, seemingly in excellent health. At 2 A. M. he was awakened by violent muscular twitching in the right inguinal region. The myoclonic contractions were painful, persistent and severe; sleep was impossible; medication gave no relief. When I saw him several days later they had extended to the abdomen and the lower extremities; the upper extremities were but slightly involved. His appetite was good; his mind unimpaired; there was no temperature the first twenty-four hours. The neurological examination was negative, as were also the serological findings. A week after entering the hospital, he said he felt fine aside from soreness in the area of twitching; there was, however, mental confusion and irrational talk, of nights, with memory defect. Then marked improvement occurred and convalescence seemed imminent. Suddenly there developed difficulty in swallowing; he became first lethargic, then comatose and died twelve days after entering the hospital. Perhaps one of the most striking of these patients was a young man who had experienced a mild but unrecognized attack of encephalitis; for weeks he slept night and day; if he sat down for a moment he immediately fell asleep. There was a distressing asthenia, the slightest exertion causing exhaustion. He was told he was hysterical—that there was nothing wrong with him.

The Boston Transcript once referred to the League of Nations as "that evil thing with a holy name." Hysteria is that evil thing with a venerated name. It is a syndrome, a disease of personality, not a definite disease. As a diagnosis of disease, it has no standing in medical court. It should be tabooed. Charity covers a multitude of sins—hysteria abysmal ignorance.

In 1896, I spent some time at Queen's Square, London. This was in the day of Bastian, Buzzard, Beevor, Ferrier, Gowers, Hughlings Jackson and Victor Horsley—the golden age of British neurology. I saw an unusual number of cases of multiple sclerosis which I was informed were sent into the hospital with the diagnosis of hysteria; but hysteria is not the only disease that is a masquerader. The same is equally true of encephalitis.

Recently, I saw in consultation a case where skillful neurologists—all clever diagnosticians—differed as to a diagnosis between brain tumor and encephalitis.

Last December, the patient, a man of forty-three years, was rendered unconscious by a blow on the head with a blackjack. Several years ago he had been struck on the temple by a 200-pound weight. There had been no ill effects—not even a headache. About the middle of last December, he observed an awkwardness in manipulating the pedal of his automobile with his right foot. Two weeks later slow rhythmical contractions occurred in his right foot and leg; there followed loss of power in the leg and foot-drop. These rhythmical contractions gradually extended up the thigh and abdomen, to the arm and fingers and face; they were of an athetoid character and occurred at intervals of several days. For a month there was a marked lethargy. There was severe headache; at times delirium; occasional vomiting—not of the projectile type; the optic discs were pale but not choked; there was no disturbance of sensation; speech was unintelligible, although at times he could enunciate a few words. The spinal fluid was under pressure, but, aside from a marked Nonne, otherwise negative. When I saw the patient there was a flaccid paralysis of the right side, a definite Babinski of the right foot, no ankle-clonus, a Parkinsonian face, headache, and occasional vomiting spells. The spinal fluid showed great pressure; Nonne plus one; 19 cells per cu. mm.

To me, this case was an encephalitis simulating a brain tumor. Serological findings are important but not decisive in diagnosis, as in 50 per cent of the cases of encephalitis they are negative. The cases of Sands⁵ show that optic neuritis and choked discs, although uncommon, do occur in encephalitis. He quotes the case of Ubrantschitsch, in which there was intermittent bilateral choking of disc, and the four of Symmonds, in which optic neuritis was associated with diffuse lesions of the nervous system.

Ever, one should keep in mind the statement of Bassoe that "tumors of the third ventricle and basal ganglia may be clinically identical with encephalitis—the same being true of localized basal meningitis with extension to the third and fourth ventricle." Never for a moment did I forget Geiger's remarkable case in which the diagnosis both anatomic and clinical was unquestioned until the *bacillus botulinus* was isolated from the medulla oblongata. Bassoe truly says "that no disease makes greater demands on the all around knowledge of the diagnostician than epidemic encephalitis."

The following case contains much that is of inter-

est especially from the diagnostic and therapeutic standpoint:

A., aged 45; father died of bronchial pneumonia in 55th year; mother now in 65th year and, aside from migrainous headaches all her life, is well; one sister and three brothers well; has had three attacks of pneumonia; blood poisoning 20 years ago; appendectomy in 1905. An epithelioma of the lip was removed twelve years ago. He had his first attack of migraine when sixteen years old and they have increased in severity and frequency. For the past nine months, A. has never been free from headache and it was because of this he consulted me. He has had three attacks of influenza—1918-1919-1920. These left him markedly asthenic; this condition has progressively increased up to the present time. Not only has there been a constantly increasing headache but associated with this during the same period has been a persistent lethargy; migrainous attacks have been of frequent occurrence lasting from 12 to 24 hours. Mental reflexes are sluggish and memory is markedly affected; the face is expressionless; there is vertigo, constant sighing and great irritability. For the past year, A. has noticed a slowness and clumsiness of the muscular movements of his left arm and leg. This was associated with a distinct loss in power; sharp stinging pain was of common occurrence in the affected limbs and the left chest. Deep and superficial reflexes normal; no impairment of sensation. Dynamometer—right hand 95 degrees; left hand 25. Chronic catarrhal otitis media, non-suppurative, of both ears. Backgrounds of both eyes normal. Hemoglobin 100 per cent; red blood cells 5,680,000; white blood cells 6,100; urine negative; blood pressure 159 systolic, 100 diastolic; serological findings in blood and spinal fluid negative.

I have records of two similar cases that did not continue under observation. Several things are worthy of note in this patient; there was no acute attack; the onset of the disease was insidious and slow. A. believed himself to be suffering from an unusually severe form of migraine. The sharp acute attacks of pain were quite characteristic of his migrainous seizures but what A. could not understand was the constant headache persisting between them. On first glance, I thought it was one of those rare phases of migraine analogous to the status epilepticus. Observation showed this was not the case. The failure of memory, the mental dullness,

the severe headache, the hemi-paresis suggestive of the involvement of the adjacent motor region lacks only the rotation of the head and eyes and purposive movements to conform to the classical description of a frontal lobe lesion as described by Hughlings Jackson. I have repeatedly emphasized asthenia as a cardinal symptom of encephalitis. Dr. Ball has recently reported four cases where it has manifested all the characteristics of a myasthenia gravis. The sense of exhaustion in this patient was one of the first symptoms; it was persistent and progressive. The serological findings were negative. Their significance in this affection is regarded as problematical although Eskuchen states that there are two spinal fluid syndromes which may be considered fairly characteristic (Bassoe): (1) pleocytosis, globulin increase, luetic gold curve, hyperglycorrhochis (sugar increase); (2) cell globulin dissociation (high cell count in proportion to the amount of globulin); luetic gold curve; hyperglycorrhochis.

Thalhimer and Updegraff⁶ tell us that the sugar content of the blood and spinal fluid is increased in epidemic encephalitis but that there must be a wider extension of our knowledge of the amount of sugar in normal and pathologic spinal fluid before its diagnostic significance can be determined; that at present its chief use lies in the differentiation of encephalitis from tuberculous meningitis and early poliomyelitis.

Dr. Kraus believes that the tetrad of symptoms—increase of cells, globulin, sugar with changes in the goldsol curve, is of diagnostic importance; that the most important single feature is "the quantitative sugar determination." The reports in literature of spinal sugar in other diseases being so few, this statement should be taken with reservations. The sugar test is of importance during the entire disease. There is no characteristic goldsol curve. That of paresis frequently occurs; also a type of low curve suggesting that of meningitis. To me the important thing is not the type of the goldsol reaction. The significant thing is the fact of its occurrence showing as this does a parenchymatous involvement.

My thought in reporting this case is to call attention to the rather remarkable effect of the intravenous injection of sodium iodide on the Parkinson syndrome and the headache. The Parkinson syndrome is of common occurrence. Hunt has ob-

served it as early as the second year; its occurrence in young people from the eleventh to the fifteenth year he thinks is not uncommon. He described fragmentary types, namely, cases in which the only symptom was that of the mask-like face; cases in which there was paralysis of the lower extremities, the upper not being affected; tremor of the head with the expressionless face, there being no other symptoms; but the hemi-form I believe to be rare. It is not unusual for the character of the illness, as in this instance, to go unrecognized until this syndrome has made its appearance. Without doubt, many cases of apparent paralysis agitans are really the Parkinson syndrome of an encephalitis which have escaped recognition. Dr. Hunt regards this late paralysis agitans type "as a recrudescence of the inflammatory process rather than a slow degeneration." It may develop during the attack or several years later. Catalo states he has never seen a recovery. Courtney, on the other hand, says he has observed recovery once. Taylor says that the paralysis agitans types, so far as he has seen them, have steadily improved. Ramsey Hunt tells us that the consensus of opinion is that this group tends to improve—even to get well. About four weeks ago, A. had a mild influenzal attack; before its occurrence the Parkinson symptoms had practically disappeared; there were aberrant pains in the left side, but they were slight and insignificant; the power had returned to the arm and leg. This illness lasted ten days; before this the headache had ceased; afterwards it returned, especially behind the eyes and at the bridge of the nose; the power in the leg was not affected; that in the arm was noticeably impaired. The old shooting pain in the side, arm and leg came back; while the Parkinson characteristics are no longer apparent, the associated sensory manifestations are very much in evidence, although they are gradually growing less.

The researches of Goldstein, Foix and McKinley⁷ seem to indicate the relation of lesions of the substantia nigra and to a less degree those of the lenticular nuclei to the evolution of the Parkinson syndrome. According to Souques, Parkinson's disease is not a disease, not a morbid entity, but a syndrome which may be due to a number of different causes which act upon a certain localized portion of the nervous system. He stresses the importance of the substantia nigra and the value of encephalitis and its lessons in the evolution of this concept. It

is not the nature of the cause nor the variety of lesion, but the topography of the structures involved upon which one should focus attention. The clinical picture may be modified by certain specific causative factors. This is of secondary value. The important thing is to keep in mind the facts of anatomical locality. It was this conception of the pathology of this syndrome that suggested to me the use of intravenous iodide medication, the use by mouth having been proved futile. The result in this case was at least a pleasant surprise—namely, the disappearance of the Parkinson syndrome.

Recently, Dr. T. J. Glasscock, of Finley, North Dakota, used, at my suggestion, this intravenous medication in an acute attack of encephalitis where the outstanding symptom was that of Parkinson, with the most gratifying result, the syndrome disappearing, aside from the mask-like face. Perhaps these observations are a chance happening—a hitherto unrecognized phase of this protean symptomatology, or perhaps this form of administering the iodide relieves "the persistence of fully active inflammatory lesions" as observed by Foix.

Headache, also a cardinal symptom, is rarely absent in the chronic type of encephalitis. It is persistent, agonizing, intractable; the pain may be so severe as to cause suicide, so unnerving, so terrifying as to give rise to an acute depression. Rest and lumbar puncture greatly ameliorated it in the case of A., but no positive relief was obtained until we used the iodide intravenously. At first the injection greatly increased the pain, which lasted for about a week. Dr. Hengstler suggested that lumbar puncture be made at the same time; it was a happy suggestion, there being no pain when the iodide was administered in this way. After definite improvement occurs, the puncture may be discontinued. One thing should be emphasized—the puncture must be made at the time of the injection. Headache does not necessarily follow an intravenous injection of sodium iodide.

Dr. Hammes tried sodium chloride tablets for three and a half months in one of his cases of encephalitis for relief of headache; there was some improvement, but it still persisted; he then administered iodide intravenously with slight improvement, but the headaches continued. The last injection was given February 13, 1923. On the 23rd the patient had a severe headache, which lasted for three days. There have been only slight attacks

since; the patient has returned to her work and is apparently well. It would appear as between three and a half months of chloride of sodium and four injections of iodide, honors were even. A patient of Dr. Hengstler's, prior to the injection of the sodium iodide, complained continually of the grinding pain in the calf and foot of the left leg, also in the foot of the right leg; there was pronounced nerve trunk tenderness and hyperesthesia in the post-tibial nerve group of both legs and over both feet. From the first injection of sodium iodide the pain stopped and the patient improved steadily until now, after the fourth injection, there is no nerve trunk tenderness and the hyperesthesia has entirely disappeared.

Cheinisse,⁸ of Paris, deprecates the overuse and the prevailing idea with respect to the harmlessness of intravenous injections. He quotes Pery's case where, following an intravenous injection of urotropin, there resulted hematuria, epistaxis and pulmonary congestion with hemoptysis. He points out that certain substances such as sodium carbonate and calcium chloride are especially irritating to the perivascular tissues and advises great care so as to avoid an escape of the injected drug into the subcutaneous tissues. Other substances like sodium iodide solutions have the disadvantage of causing induration of the veins. Personally, our observation does not confirm this view, as regards the iodide.

A distinguished Baltimore surgeon said to me during the days of my internship, that pain would kill. The observation of the years has confirmed the statement of this keen-visioned physician. Nothing was known at that period of the rôle played by the instinctive emotions. The revelations of Cannon, Crile and their co-workers lay in the lap of the future.

As a dynamic, pain is more powerful than emotion; its destructive effect on the nervous system is more marked; in great severity it is lethal. If such a simple procedure as an intravenous injection of iodide associated with lumbar puncture can relieve suffering so intolerable (for pain is always a human tragedy), not only is it a great boon to the patient but it lessens by just so much the menace overhanging the encephalitic.

"Happy is he who has learnt the value of research," says Euripides; its importance has certainly been appreciated as is shown by the intensive

studies made by research workers in the investigation of the morbid anatomy of epidemic encephalitis. The Commission of the Association for Research in Nervous and Mental Diseases, in their studied was too small to permit of final deductions; recent report, state that the number of cases they that only an outline of the entire pathological process of the disease could be made at the present juncture, and that a "statement that there is a complete specificity in the pathological process of epidemic encephalitis" is not warranted. Pathologists, generally, are in accord that the basal ganglia and the nuclei of the cranial nerves are the points of special selection by the virus. Naturally, one would expect in encephalitis to find marked involvement of the cerebral and cerebellar cortex, but just the contrary is the fact. Ayer says that he has not observed a single case where the cortex was affected as much as the other parts. The investigation of the cortex, according to Tilney, has been inadequate and he believes that "we cannot guarantee any statement as to the relative cortical involvement." The cortex being negative, Sachs thinks the important inference would be that lethargy does not depend upon the cortex.

The Commission also state that the most that can be said with regard to the endocrine organs is that "from the limited findings the evidence of pathological alteration seems almost negligible." It would appear then that the pathology of this disease is yet to be worked out.

The clinical picture is so varied, so markedly different in the three epidemics, that with our present knowledge ultimate prognosis is a matter largely of conjecture. Grossman estimates that less than 20 per cent die during the acute attack. Of those that survive the acute illness, 10 per cent manifest progressive disease of the central nervous system. The remainder make a functional recovery in from six to twenty-four months, with a tendency to progressive improvement after that period. Stephenson states that the grosser the tremor in the Parkinsonian and spinal types, the more rapid the improvement and that the cranial nerve and diplopia type offer the best outlook.

The treatment of encephalitis being empirical and expectant, the results are necessarily disappointing. This must not be permitted to lead to nihilism in therapeutic endeavor. Palliation is imperative where cure is impossible.

Some medical man with genius and a daring imagination will some day envisage the etiology of this disease just as has been accomplished in epidemic cerebrospinal meningitis and again the apparently impossible will have been attained. The Commission appointed by the Association for Research in Nervous and Mental Diseases states that it "feels itself constrained to make no report upon the merits of any particular method of combating the disease—not knowing the causative factors involved in the pathogenesis of epidemic encephalitis it becomes impossible at present to outline a rational therapy."

The sheet-anchors of treatment are lumbar puncture,* the intravenous injection of sodium iodide and of sodium chloride together with nervous sedatives. Dr. Whitmore tells me that he had the opportunity of observing about three hundred cases of encephalitis lethargica in which Economo used a colloidal potassium iodide solution intravenously. In some there was improvement; in others none.

Certain Baltimore physicians, so Dr. Foley informs me, are using the hypertonic salt solution intravenously during the more acute stages of encephalitis and particularly in cases exhibiting irritative phenomena and in those with very severe headache. The rationale of this procedure is based on the well-known physiological fact that hypertonic sodium chloride solution given intravenously causes a fall of the cerebrospinal fluid pressure and decrease of brain volume owing to dehydration of brain substance.

The probable explanation of the relief of symptoms—headache, twitching, etc.—is that the cerebrospinal pressure in general is lowered and the fluid contained in the tissue spaces of an edematous area, the perivascular drainage of which has been obstructed by cell infiltration, is absorbed back into the blood stream. Unskillful administration may give rise to very serious consequences. Dr. Foley states that the apparently effective dosage is from

*Since the reading of this paper, there has been a case referred to me by Dr. A. E. Walker of Duluth, in which there was a temperature of 105.3 degrees, delirium, intractable insomnia, coarse tremor in both arms and hands, with pain in chest just below the clavicle and in the right lower extremity. There was marked stiffness in both upper and lower extremities; could raise the arms with great difficulty. There was also myoclonic twitching of the facial muscles. Baths failed to reduce the fever. Benefit from lumbar puncture was almost startling; relief was apparent from the first spinal drainage. This was done on alternate days. Within a week the fever had disappeared; the tremor was greatly improved; myoclonic twitching of the facial muscles ceased; delirium passed away and were it not for the treacherous nature of the disease one would think convalescence was at hand.

80 to 150 c.c. of a 15 per cent solution. It must be given slowly—about five c.c. per minute. Signals for slowing the injection are sensation of heat and tingling in the extremities and about the face and lips, increasing pulse rate and slight dyspnea.

A patient of Dr. Hengstler's, during a very severe attack of lethargic encephalitis, contracted facial erysipelas. When convalescence occurred from the latter, all symptoms of the former had disappeared. Should credit for recovery be given to the influence of a foreign protein or to the leucocytosis and consequent immunization due to the erysipelatosus infection?

Artificial leucocytosis (fixation abscess, nucleinates) has proved futile as has the injection of cacodylate of soda. Equally disappointing has been the subcutaneous injection of the patient's spinal fluid, the intraspinal injection of the patient's blood serum and the intraspinal injection of convalescent serum. Bérrel says that there is no proof that the use of hexamethylenamin has any value notwithstanding the striking results reported by Drs. Thomas and Reud. The benefit to be derived from serums specific and non-specific remains to be determined. Massage should be used in the chronic form of the disease only. The infection is as treacherous as it is deadly. Death may suddenly end an apparent convalescence, or, after the patient has been seemingly well for a year or more, unexpectedly the previous symptoms flare up and the patient succumbs. Seemingly convalescence then may be an illusion of hope—apparent recovery a fool's paradise.

BIBLIOGRAPHY

1. For this description of the Epidemic in Manitoba, I am indebted to Dr. Charles Hunter, Winnipeg.
2. Editorial, Jour. Am. Med. Assn., March 10, 1923.
3. Acute Epidemic Encephalitis: An Investigation by the Association for Research in Nervous and Mental Diseases.
4. Bassoe: Nervous and Mental Diseases. Practical Medicine Series, 1922.
5. Epidemic Encephalitis Simulating Brain Tumor: Sands, Irving J. Medical Record, March 25th, 1922.
6. The Sugar Content of the Blood and Spinal Fluid in Epidemic Encephalitis: William Thalheimer, M.D., and Helen Updegraff, M.A., Milwaukee. Archives of Neurology and Psychiatry, July, 1922.
7. Lesions in the Brain of a Patient with Post-Encephalitic Paralysis Agitans: McKinley, J. Charnley. Archives of Neurology and Psychiatry, January, 1923.
8. Paris Letter, Journal of Am. Med. Assn., March 31, 1923.

EPIDEMIC ENCEPHALITIS: SOME OF THE MORE UNUSUAL OF ITS WIDELY VARIANT SYNDROMES*

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Since Economo, in 1917, called attention to a "new disease" which he designated as lethargic encephalitis (followed early in 1918 by the work of Netter, Harris and Hall in England), current medical literature has teemed with articles dealing with various phases of this remarkable affection. Most observers have endeavored to classify this disease under different type headings, largely based on resemblance to other diseases of the nervous system, one writer presenting fourteen different group pictures. This only serves to add confusion to the bewildering, frequently changing, disappearing and reappearing, symptoms of a disease entity so multifiform, incongruous and contradictory as to make any effort at definite type-classification futile; for a single case may present the manifestations of several different so-called types during its course.

What relationship, if any, encephalitis bears to influenza is not yet fully determined. E. Bramwell thinks the burden of proof is against any whatever. However, the two diseases have occurred in close sequence, spread similarly in a world-wide distribution, and many cases that finally prove to be encephalitis have a typical influenzal beginning,—including the peculiar heavy fetid odor not present in any other disease. During the early months of 1923 there was an extensive though mild epidemic of influenza and a pronounced increase in the number of cases of encephalitis, in some localities assuming epidemic proportions. Kling, Davide and Liljenquist have apparently demonstrated a separate specific pathogenic agent in the spinal fluid and blood of individuals affected, the injection of which reproduces the clinical picture in guinea-pigs and rabbits. It is described as a filtrable virus, transmissible in series to a limited degree and susceptible to culture. Zannelli found on experiment that the normal nasal mucosa resists invasion, but obtained positive results when resistance was lowered by chilling the surface. This may have a bearing on the usual seasonal incidence of the disease. Yet all cases do not occur in winter.

The virus shows exclusive affinity apparently for the central nervous system, more especially the basal ganglia and the brain stem. It may, however, attack any part of the brain substance and also at least the upper spinal cord segments. In some cases, too, the clinical picture would indicate that the lower cord regions may also be involved, in rare instances simulating cord tumor, like the following:

Mrs. L., aged 43, had a uterine fibroid removed in December, 1920. In August, 1921, she began having very severe pain in the lower back, flashing and radiating out over left hip, with some muscular spasm. This pain later extended across the sacrum, down the right leg to the knee and around over the abdomen. Although x-ray plates were negative, Dr. Sohmer, who had removed the fibroid, suspected malignancy and removed the cervix in September. The patient lost flesh rapidly. Six weeks later she visited the Mayo Clinic, where physical examination was negative, but a neoplasm was suspected.

This patient came under observation Nov. 30, 1921, at which time she was much emaciated. The left patellar reflex was greater than the right. An area of paresthesia was present about the right knee. She was sensitive over the right sacro-iliac joint. Deep pressure over the lumbar plexus caused shooting pain down the anterior crural nerve. Two weeks later she developed severe headache, active delirium and vomiting. Temperature 100°. The patient cleared mentally after three days, the delirium recurring later. Pain in back and legs was extreme. The Babinski was present on the left. Attacks of stupor supervened. Dimness of vision, hallucinations of sight, dysarthria and dysphagia followed. The fundus was normal. Spinal fluid was negative, except the colloidal gold,—001344432. Severe pain in the back and legs was the predominant symptom throughout. The patient died Jan. 6. Respiration continued after the heart had ceased.

Another case resembling cord tumor was Mr. P., aged 37, married, who came under observation Sept. 25, 1922. The previous March he began to have numbness in toes, some temperature for a time, a feeling of tightness in the knees, the numb feeling gradually creeping upward to the trunk. A feeling as though snakes were crawling about in the abdomen was complained of, with peristalsis visible. The legs grew gradually weak and he had been able to walk but little since August. The cramp-like pains occurred in the abdomen with involuntary flexion of the thighs. A feeling of tightness in the chest and difficulty in full respiration occurred. There were numb feelings in the fingers at times, much spitting, difficult micturition. Abdominal and cremasteric reflexes were absent. Patellar response was highly overactive; ankle clonus was present. Marked Babinski and Throckmorton. No objective sensory changes were noted. There was a spastic, ataxic gait and marked ataxia of station. Joint and muscle sense was reduced. A heavy fetid odor about the body like that of influenza was noted. Spinal serology was negative. The course was slowly and relentlessly progressive up to the present. He had marked spasm of the leg muscles which were highly

*Read before the Hennepin County Medical Society, June 11, 1923.

painful. At times he was unreasonable and mentally disturbed. Attacks of extreme cephalalgia and vomiting occasionally occurred. He is now under observation, but apparently approaching a fatal termination.

Cut surface of the brain substance presents only slight departure from the normal appearance. Minute petechial points are seen which are usually dilated vessels, but occasionally small hemorrhages. Under the microscope there is extensive round cell infiltration about the vessels, dilatation of the perivascular spaces and interstitial edema of the brain substance. In the examination of earlier cases some pathologists missed these conditions altogether and reported negative findings. Some degree of chromatolysis has also been observed but without actual destruction of the ganglion cell, which latter accounts for the complete and at times astonishingly rapid disappearance of the qualitative changes in the deep reflexes. The exact avenues of transmission and invasion of the virus are not known. The disease is commonly considered not contagious, but instances are recorded where several members of a family have been stricken, and in one case a nurse contracted the disease while in attendance on a case of encephalitis.

No other disease process affecting the nervous system presents anything approaching the widely varying syndromes found in cases of epidemic encephalitis; nor such manifold or rapidly shifting features in the same case; nor one that masquerades in the guise of so many other affections of the nervous system, both functional and organic. And while no other disease presents so many difficulties in diagnosis as does this protean complex, the fact is that, while it offers a very close resemblance to one or another condition, careful study and comparison will show either some incongruity, some essential symptom lacking, or a superabundance of elements, thus offering a definite aid to differential diagnosis. In many cases exact determination is possible only after long continued observation.

Sex and occupation have no bearing on its incidence. Chiefly of cold weather seasonal occurrence, it still is known to develop in summer, several in this series beginning between May and September. Most cases are found in the middle decades of life, but it also occurs in young children and the aged. The ages of those here considered range from seven to seventy-six. Some consider it rare in children; others find it occurring frequently with them.

The writer has seen only two. One of these already reported* may be briefly summarized:

Paul P., aged 7. Mother neurotic. In January, 1919, parents first noticed a tendency at times of the eyes to cross. He showed general malaise. The strabismus increased. Then trouble with speech. Some vomiting. Seen in consultation with attending physician, Dr. G. M. Doran, on Feb. 22, 1919. Marked internal strabismus of both eyes. Slight phonation. No lethargy. Tongue not protruded. Incoordination of arms. Pendulum swaying when sitting. Cannot keep his feet, staggers in all directions. Patellar response overactive and equal. No clonus. Great toes show extensor response to all tests. No nuchal rigidity or Kernig sign. No elevation of temperature. The following day he developed dysphagia, inhaled liquids, and respiration failed.

So many cases of the more usual symptom groups have been reported, and the congeries presented are so many, that no time need be here taken to detail individual symptoms of these, whether referable to the psychos, the sensori-motor distribution, or the vegetative nervous system, depending on the location of the points of attack of the focal invasion. Therefore, only a limited group of cases showing either rare or unique individual symptoms or pictures (in addition to the two cases simulating cord tumor presented above) has been chosen for presentation at this time.

A case briefly referred to in discussion of a paper** by Dr. House presented perhaps the most unusual picture so far observed by the writer:

Arthur S., aged 30, farmer, was referred by Dr. McDougald of Le Sueur, on Oct. 18, 1920. Neurotic family antecedents. He had been gradually losing flesh and running down the past two years. Unable to do much work the past three months, he tired very easily, lacked appetite and complained of a sour taste in mouth. Frontal headache of late. Mentally depressed. Pupils dilated, equal, react. Convergence poor. No nystagmus. Expression dull. Slight tremor of hands. Reflexes all sluggish. Temperature normal. Pulse 68. Blood pressure 110/70. Chest and abdomen negative. Conditions remained about stationary for several weeks. Developed constant spitting of fluid saliva. Marked cephalalgia unrelieved by any medication. Speech somewhat slow. Walking about room one day, he fell flat on his back. Wanted to go home and thought he was able to do so. Began to complain about being unable to see. Fundi examined by Dr. G. E. Benson, who found marked double choked disc. Suddenly developed paretic condition of whole left side with heightened reflex responses including extension of great toe to Babinski and Crafts tests, all of which gradually cleared up. Spinal puncture showed the fluid under some pressure, otherwise negative. The choking of the discs, however, very definitely receded after the puncture and did not again

**Jour. Am. Med. Assn.*, vol. 73, p. 267.

***Jour. Am. Med. Assn.*, vol. 79, No. 3.

increase. Staggered in walking and tended to fall always backward. Was seen in consultation also by Dr. Corbett, with tentative diagnosis of cerebellar neoplasm. Hebetude increased. The sphincters were involved. Continued retrogression. Double suboccipital decompression was done by Dr. Corbett. Puncture of the dura showed the fluid under some pressure. No tumor found. Autopsy showed the usual findings of epidemic encephalitis.

For several months at the onset this man had presented only a simple neurasthenic condition, showing how slow and insidious the development of the disease may be. The recession of the choked disc following spinal puncture and drainage, and no further increase over a considerable period, raised a decided question of doubt in the writer's mind as to the presence of a tumor. No record, however, could be found of its occurrence in encephalitis, and operation appeared clearly indicated. It is an exceedingly rare symptom. House, in reporting on 145 cases, does not mention it. Kennedy, in a recent review of the subject, does not include it. And the only reference so far found anywhere, is in a recent discussion by Dr. Grinker. Its recession following puncture in this case may prove to have decided diagnostic value in future cases. It has been held by some that increase of the normal content of sugar in the spinal fluid is an important diagnostic factor, but cases are observed in which there is a definite reduction in this element.

There were several other cases which also showed choked disc and greatly resembled brain tumor, and were so diagnosed by one or more observers.

One of them, C. F. M., aged 46, tailor, with a decided nervous trend in family, began having extreme frontal headaches in July, 1921. They continued and increased. He was very nervous. He took an automobile trip of 1,500 miles and nearly drove off road several times. Came under observation on Sept. 22, 1921. Quite marked general tremor. Walked automatically. Some incoordination. Pupils dilated, equal and reacted fairly. No material change until October 23, when he suddenly became unconscious and remained so for seven hours. Dizziness accompanied the headaches. Vomited at intervals. Unconscious again on the 27th, with stertorous respiration, relaxed left face, right pupil large and not circular. Left forearm rigid and flexed. Reflexes increased on the left side with ankle clonus and Babinski. Double clonus the next day and extensor response of both great toes to Babinski, Crafts, Oppenheim and Gordon tests. Rigidity and clonic tremor of left arm. Leucocyte count varied between 5,000 and 13,000. Spinal fluid showed no pressure, 4 cells, otherwise negative. Choked disc in both eyes. Was mentally brighter day following puncture. After three days reflexes returned to normal. Marked eruption on back, probably herpetic. Saw "stars and drapes" all

about him and objects on the wall. Repeated lapses into unconsciousness with Cheyne-Stokes respiration and bradycardia, profuse perspiration, frequent yawning, dysphagia and irregular rise of temperature, delirium of alcoholic type. Temperature rose to 106.2°, pulse to 176 just before death.

The third case presenting choked disc was of a young man, seen in consultation with Dr. Geo. E. Benson, in October, 1921. The previous winter he had what was considered an influenzal attack accompanied by headaches and dimming of vision which persisted. Examination showed double choked disc, which with headaches and dizziness continued. Right parietal decompression was done by Dr. Corbett. There was marked pressure followed by decided hernia cerebri. But no tumor could be located. The wound healed, and the hernia completely subsided. Vision cleared to practically normal, and all choking of the disc disappeared with all subjective symptoms. In this case, of course, certainty of diagnosis may be questioned. But, considering the whole picture, there is little room for doubt.

Another patient, Mr. W., aged 68, presenting a complex also resembling brain tumor, in which an internist had made an elaborate diagnosis of primary cancer of the liver with metastasis to the brain, came under my care on July 10, 1921. Sharp shooting head pain had begun the previous April. No sleep night or day. Was somewhat "dumpish." There had been some delirium and hallucinations of sight. He was uncertain on his feet and would stagger. Headaches had improved somewhat in June, but vision was growing dim and suddenly became completely blind on July 1. When first seen he was extremely emaciated. Face lacked expression. Reflexes normal. Headaches gradually disappeared. Regained his flesh and general health. Dr. C. D. Wright reports the fundus showing complete simple double optic atrophy, such as is found in lesions of the optic paths, with no indications of pressure.

Another man showing a similar condition, with diagnosis not altogether certain, was referred by Dr. Leavitt. Mr. L., seventy-six years old, was seen on Jan. 3, 1922. A week previously began having very severe frontal pain, worse when lying down, and preventing sleep. Two days before, he noticed dimness of vision in the right eye. Had been somewhat dizzy the past four days. The headache had diminished since reduction in vision developed. Vision fairly good in left eye. Tends to walk to the right. Right pupil dilated. Reflexes negative, except for reduced plantar response, on the left. Urine normal. Pulse 100. Blood pressure 145 systolic. Vision failed rapidly in the left eye following the right, with complete blindness. Headaches disappeared. The fundus showed only complete simple double optic atrophy.

Another case, Mr. B., aged 43, merchant, referred by Dr. C. M. Kistler, shows a verisimilitude to brain tumor. In December, 1922, he began to notice difficulty in control of the right foot; then, without warning, an attack of muscular spasm confined to the lower leg and foot. There was diminution of power in the whole leg with some foot drop. No sensory disturbances. Yawned a great deal at this time. The spasms recurred at intervals of several days, advancing gradually up the thigh, abdominal parieties and

the arm. The arm became almost powerless for some days, when it suddenly regained good movement. At the same time the leg improved gradually in power. The great toe showed the Babinski, Crafts and Throckmorton responses. There has never been any ankle clonus. The discs at first showed nothing but pallor; marked double choking is now present. Attacks of severe cephalalgia have recently supervened. Spinal serology shows the fluid under marked pressure, and there is a strongly positive Nonne and a cell count of two per cu. mm. There have been attacks of hiccough and spells of drowsiness and sleep. He is entirely conscious during the attacks of muscular spasm, the contractions of which are comparatively slow and of extended amplitude, starting in the foot and advancing by successive stages up the thigh, over the trunk to the arm and slightly to the side of the neck, subsiding below as they advance upward. The entire arm is lifted from the bed in a pump-handle movement. The fingers contract slowly, not in unison always, and with athetoid characteristics. The facial expression, which was vivacious, is becoming markedly dull and masklike. He weeps and perspires following the spasms, which have varied greatly in severity and duration, lasting from one to nine minutes. Following a very severe spasm the right arm was left entirely powerless. He began to show speech disturbance, a simple stammer at first, completely aphasic at present. The qualitative changes in the great toe sign nearly disappeared, but showed accentuation again of late.*

The exact pressure-producing mechanism which results in the occurrence of these somewhat rare cases of choked disc is not fully understood. It is probably brought about both by the condition of general interstitial edema and by blocking of intraventricular drainage from meningeal exudate, all together causing interference with general venous outflow. This would explain the reduction of choking which followed spinal puncture and drainage referred to above. It usually is marked enough evidently to produce some dimness of vision, or the rapidly appearing and disappearing optic neuritis spoken of by Bramwell. He does not refer to the occurrence of complete permanent optic atrophy nor has it been found recorded by other observers. In these two cases it has probably been brought about by pressure or extensive foci of inflammation in the thalamic region.

Space and time forbid the fuller presentation of symptom groups in a number of other unusual cases, which will be sketched therefore only in brief summaries.

One of these, Mr. V., aged 32, teacher, after some heavy lifting in March, 1920, began having powerful myoclonic spasms of the loins and abdominal parities. He was seen

*This case soon reached fatal termination, temperature mounting to 105 degrees just before death. This case and one other developed a dark limited pigmentation of the skin and he and one other presented marked conjunctival injection and edema.

a month later in consultation with Dr. E. Johnson at Bemidji, when nothing but that single symptom was present. This, later subsiding, was replaced by diffuse mild spasm and tremors, then restlessness, delirium like that of alcoholism, with picking at the air and bed-clothes. He developed a septic throat April 10; facial erysipelas April 15; a small pneumonic patch on the 23rd; a sublingual abscess on May 2; attacks of hiccough on the 16th; and died on the 17th. Blood cultures were negative. Lymphocyte count varied from 8,800 to 32,000. Wassermann was negative. Reflexes normal. Temperature reached 106° on April 20, rose to 105° or over ten different times, and reached 106° five times, going to 106.8° at death. The pulse followed a much lower range, from 90 to 120. Autopsy showed the characteristic foci scattered through the basal ganglia and brain stem, and an abscess in the left kidney.

Two recent cases, both women slightly beyond the age of forty, began with mental depression, weeping, whining and restlessness.

In one, referred by Dr. Robert Williams, lethargy supervened in a few days, moderate variable elevation of temperature, stertor and Cheyne-Stokes respiration; while in the other, sent in by Dr. Johnson of Bemidji, sharp excitement with shouting developed. Both advanced rapidly to fatal termination, the temperature rising to 108.2° axillary in one and 109 rectal in the other, just before death.

This final remarkable elevation of temperature, noted in a large proportion of cases by the writer, appears to be its most characteristic manifestation. Two other rapidly fulminating cases were ushered in by great excitement, local muscular spasm, quickly followed by stupor, paralysis of the detrusors, inability to swallow, and death in a few days.

While several cases showed apoplecticiform attacks during the progress, only one had an apparently apoplectic beginning.

Mrs. C., about 68 years old, returning from a long automobile ride, entered her home and fell unconscious to the floor. She was seen with Dr. McDougald at Le Sueur, in stupor, and possibly with slight relaxation of left face. Reflexes were all normal. Lethargy continued with occasional rousing; profuse perspiration was present; death supervened a few days later. Careful questioning revealed the fact that for a month preceding the acute picture, she had been profoundly drowsy, falling asleep wherever she was.

A most remarkable case was seen in consultation with Dr. Tupper on June 10, 1923, which began some five days earlier with sudden purging and vomiting and temperature of 104°. This followed eating of canned salmon and appeared like ptomain poisoning for a brief interval. Then delirium supervened and severe pain in both lower legs. Passive motion of the legs would rouse her from the effects of the opiates, sensitiveness being so marked. Extreme headaches had supervened and she was apparently completely blind when I first saw her. The next day there was deafness in both ears. The next day, when seen again, she was in a stupor and the conjunctivæ were markedly

injected and edematous, a striking symptom, noted in only one other case. Death occurred that evening.

Another very unusual congerie was presented in a woman of 30 years, Mrs. O., seen with Dr. George, June 3, 1921. She had had an attack of extreme vertigo in the fall of 1919. Another similar attack in August, 1920, which continued and increased. She would stagger and run into things on the street. No other symptom until the following winter, when she became delirious. She fell to the floor unconscious in May, remaining so for several hours. She presented double ptosis, slow and slurring speech. Later she became violent, attacking the nurse; retrograded gradually with fatal outcome.

Two cases had long continued myoclonic spasm as a residue, one a constant jerking of the great toe. This case went from observation in November, 1920, apparently recovered except for a general asthenic state and returned just two years later presenting a complete agitans picture with tremor and marked general flush. The other had a sort of prancing movement of the whole left leg.

In its course and duration epidemic encephalitis is as uncertain in its behavior as in its other characteristics. Cases have been known to reach a fatal termination in as brief a period as four days. Others have continued for weeks or months, and our present knowledge of the long vitality of the virus explains cases now recognized as continuing on for indefinite years, not even yet fully determined as to possible length of duration. Foster Kennedy cites such a case now under observation that began in November, 1918, with active symptoms still persisting. The writer has an ex-service man whose condition began with what was diagnosed as influenza in November, 1918, with improvement and exacerbation of symptoms continuing to the present. The Parkinsonian syndrome became marked about a year following the onset. At times he has been delirious, at times lethargic and suffering from headaches, and now shows the typical agitans picture, without tremor. It has all appearance of a fixed and stationary state. Some writers speak of a permanent residue remaining in some cases. It is, however, too early as yet to make positive statements as to permanent disabilities.

Some observers report cases occurring in previously well and vigorous people; others find that most of their cases have been in individuals in run-down condition. None speak of evidence of predisposition. The writer has been struck by the considerable percentage of cases in which there was definite neuropathic heredity.

Various observers give widely divergent figures on mortality rates,—from none to over 50 per cent. Of the total cases on which this paper is based, slightly more than 33 per cent were fatal. But as has been pointed out by other writers, undoubtedly many milder or abortive cases are never recognized, and only the most serious are seen by specialist and consultant, making it evident that the actual death rate is decidedly lower than most reported figures indicate; and yet the disease is a highly fatal one.

No definitely effective treatment is known. Many measures have been employed. The value of any of them is uncertain. Simple supportive effort is for the most part indicated. Radical proceedings, like the subcutaneous injection of cerebro-spinal fluid, repeated spinal drainage and the like, have been resorted to. Urotropin probably has some value. Sodium iodide by mouth or intravenously appears to have some therapeutic effect. Opo-therapy has advocates. Hypodermoclysis or proctoclysis may be beneficial. Free elimination is desirable. Attempts to develop a specific serum are still in the experimental stage.

CASE OF ACUTE INTESTINAL OBSTRUCTION CAUSED BY VOLVULUS IN HERNIAL

SAC

W. H. MAGIE, M.D.

Duluth

Mr. Harry Johnson, aged 35, by occupation a carpenter, was admitted to the Morgan Park Hospital January 31, 1923, at 2:50 A. M., complaining of abdominal pain. He had a large tumor in the right lower quadrant of his abdomen which had been in this location as long as he could remember. Of late years it had greatly increased in size. He had had no serious trouble with this tumor until about 11:30 P. M., January 30th. While sitting in a chair eating an apple he was suddenly attacked with a severe pain in his abdomen. This pain was very severe and increased until 1:30 A. M., when Dr. Ryan was called. He was then removed from his home to the Morgan Park Hospital. I examined him at 3:00 A. M. On inspection of the abdomen, we found a large oval tumor in the right lower quadrant occupying the region lying between the iliac bone and mid-line of the

abdomen. The tumor was about 7 inches in its long diameter by 4 inches in its transverse diameter. Diagnosis of strangulated right oblique inguinal hernia was made.

Operation was performed under ether anesthesia. On opening the sac the contents were exposed. The hernial contents consisted of about 4 inches of the terminal ileum, the cecum and all of the ascending colon together with an undescended testicle. On further examination, we found that the whole mass had twisted upon the mesentery, causing a volvulus within the hernial sac. The volvulus was reduced, the testicle removed and the contents of the hernial sac returned to the abdominal cavity. The mesentery of the cecum and the colon was very long. The cecum and colon were very large with a diameter of about 3.5 inches. This case is unique owing to the fact that volvulus took place inside of the hernial sac and external to the internal ring and entirely outside of the abdominal cavity. The hernial sac was very large and adhered over its entire surface and extended across the abdomen almost to the median line. After dissecting it free

it was removed and the hernia repaired by suturing the outer border of the rectus muscle to Poupart's ligament. Then the inner portion of the aponeurosis was sutured to Poupart's ligament. The outer portion was overlapped and stitched along the inner portion of the aponeurosis, making a plication of the aponeurosis. This seemed to make a very firm abdominal wall and I believe we shall have no recurrence of this hernia. The patient made a splendid recovery and was discharged from the hospital at the end of two weeks. The most interesting feature of this case was the fact that the twist occurred entirely within the hernial sac and outside of the abdominal cavity. I have not looked up the literature of volvulus taking place inside of a hernial sac, but thought this condition was of rare occurrence and worth reporting and putting on record. I would be pleased if other surgeons, who may have had a similar case, would drop me a line or two describing their case or cases. This hernia was a congenital one and was predisposed by presence of an undescended testicle.

MORGAN PARK HOSPITAL.

THE FEDERAL MATERNITY ACT*

There is a lack of unanimity of opinion among the medical profession with respect to the federal maternity law, known as the Sheppard-Towner Act. The house of Delegates of the American Medical Association, at St. Louis, went on record as being directly and positively opposed to this act. Since that time, it appears that a number of special societies and groups of physicians whose members are members and Fellows of the American Medical Association have declared their approval of the maternity law. County medical societies and even state medical associations have endorsed programs of work adopted in various states, which have been outlined or entered on by those charged with the responsibility of carrying out the provisions of this law. Many arguments have been advanced by the opposition in the medical profession; as many have been presented in answer by those who support the movement to extend federal aid to the states in connection with maternity and infant welfare work. Every one is familiar with the arguments that have been presented, for and against. There is no just

basis for calling into question the sincerity of either side. A fundamental objection to the Sheppard-Towner Act is based upon a principle that is sound and broad and that needs no bolstering; the individual state should do for itself and its own what is needed that can properly be done by the state, with machinery provided from its own resources and without aid or interference from other agencies.

With it all, there is a challenge to the medical profession in the situation that has been created by the passage of the Sheppard-Towner Law and the discussion that has followed its enactment; and the answer is: Let the physicians of this country perfect themselves in their knowledge of all that is involved in the medical care of mothers and infants and extend their service to all who are in need of it. It is not believed that the American medical profession is less able than the medical profession of other nations to care properly for mothers and babies, but absolute and unquestioned superiority is what the American profession should strive for.

* From the A. M. A. Bulletin, Vol. 18, No. 6.

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VOL. VI

OCTOBER, 1923

No. 10

EDITORIAL

The State Convention

On October 10 to 12 the State Medical Association will hold its fifty-fifth annual convention in St. Paul. An excellent program has been arranged and provisions by the local members have been made to make this meeting the best ever held by the state association. The Councilors and the House of Delegates have much work of an important nature to transact. Every effort should be made by these representatives to be in attendance promptly and to give serious thought to the work in hand before and during the meeting.

Medical politics, which is falling into innocuous desuetude in our association, but which seems to have a kick or two remaining within its economy, should be still further eliminated and no actions taken except those which augur for the best interests of the whole membership.

"MINNESOTA MEDICINE" has already taken a stand upon the matter of choosing a presiding officer

and wishes to protest once more against the absurd practice of electing a president from Minneapolis and St. Paul twice out of each three years, as has been the custom in the past.

Such a custom can not be justified upon any grounds whatever. A presiding officer should be chosen for his ability alone, that is, his willingness to carry out the duties of the office as shown by his loyalty to the association in the past combined, of course, with a sufficient native ability. It should not matter whether he lives in one of the large cities or in the smallest country town. The injustice of selecting only one-third of the presidents from outside is made still more apparent when we consider that the Twin Cities contribute much less than one-half of the state society membership.

The Editing and Publishing Committee of MINNESOTA MEDICINE has considered this subject with some thoroughness and finds its position well fortified by the sentiment of the society membership—not only throughout the state at large but in the Twin Cities as well. The sentiment in Minneapolis and St. Paul is that it is unfair to all concerned. We therefore trust that the House of Delegates will select its officers, especially the president, without regard to his place of residence and that the old custom may be abandoned.

R. E. F.

The Optometrists and the Elevation of Standards

In the present position of the optometrists in Minnesota, and their apparent efforts to build up their professional standards, we find and notice many of the steps followed some twenty years ago by the medical profession. Their attitude toward the medical profession deserves some analysis. It is quite apparent that their work is essentially the fitting of glasses. They have no desire to be classed with *opticians*—men who, in addition to the mechanical work of preparing and framing lenses, often advance into the position of commercial spectacle fitters and merchandisers. The optometrists, in a measure, frown upon the credentials of the opticians, who invade their field of glass fitting, and here we note the beginning of a spirit which aims to advance their own professional standing and secure recognition for their credentials.

The optometrist attests that his reason for the use of the term "Doctor" is perfectly correct because he has the degree of "Doctor of Optometry";

that Columbia and some three or four other colleges offer courses of four years' duration leading up to this degree, the entrance requirements for which are a four-year high school diploma, as it is for other departments. (They admit, however, that like other cults the course of four years may be considerably shortened by the use of summer courses.)

To all direct inquiries as to qualifications, the conscientious optometrist would, of course, disclaim any intention of being an *M.D.* Nevertheless, above all of this effort on his part to practice only on his merits, appears the very obvious fact that most of the public makes no distinction between him and the medical oculist, and he most certainly basks in the reflected distinction and standing of the medical profession as a whole. It may be quite safely predicted that, if conscientious students and practitioners of optometry hold faithfully to their promises and keep up both their entrance requirements and matriculation standards for licensure, soon the keenest men among them will see the great advantage of applying two or three further years of study, and entering the medical profession proper. This would leave those without such zeal and professional spirit to seek a shortcut to a good position and a livelihood by holding all the requirements *down* and thereby abandoning the *professional* for a *trade* spirit. No doubt this contest is on, at least to some degree, within the ranks of optometrists. It must be apparent to their good men that the broader knowledge of the human body is absolutely essential if they are to be more than skilled salesmen of glasses; certainly, if they are to rise above merchandising and be able to give their clients native instruction, education or direction—ideas good even for their souls as well as their bodies. They cannot attain this position of power without the very fullest knowledge that can be acquired at the particular period of their study.

Reasoning along this basis, the decisive opposition of the optometrists to our Basic Practice Act in the last legislature was ill-advised and illogical. It was the recoil of those fearful of their own position, yet firm in an appreciation of their own fitness. Among other assertions, they contended that they were willing to demand tests in basic sciences as "applied to the anatomy, physiology," etc., of the "head and neck!" They seemed to overlook entirely that there is nothing in the neck which begins to have the association with ocular disease

that the kidney has, or (even more illustrative of the point), that nothing in medicine may quite so vitally influence the eye as syphilis—a disease with the most protean and universal bodily manifestations.

Admittedly, good optometrists do not locate in thinly settled country sections; in no way do they claim that they serve the public any cheaper than regular medical oculists. Therefore, they cannot be justified on a basis of country service or lessened community cost—arguments so often heard in favor of graduating doctors of inferior grade and less training. The optometrists do not even openly proclaim that there are insufficient regular medical oculists to properly fit glasses. In fact, like most irregular medical practitioners, they congregate chiefly in thickly settled centers of population where it is agreed by everybody are found the greatest number of good oculists.

How, therefore, does the careful optometrist justify his cult aside from the obvious purpose of making a living? He does so chiefly in the good old-fashioned way of proclaiming the "inferiority of the other fellow": "his lack of understanding of muscle balance"; "the fact that many medical doctors fit glasses who have had only a few weeks of preparation to do so." They further offer the free presumption that their minds, being unfettered by other claims for attention, encompass more fully the particular principles of physics and optics involved in their work. They assert that their long line of satisfied customers proclaim their general usefulness and community need. In the undoubted fact that many of these men do conscientious and satisfactory work, we can foresee that they are with us to stay. Present European conditions confirm an old financial law, that a strong and a weak currency cannot exist simultaneously: the strong is hoarded, and goes out of circulation. Seven-year and four-year trained "doctors" cannot exist together indefinitely. Either a flux of the latter will destroy the initiative of the former, or the lesser trained must be brought up to an average consistent for both, and parity result.

A recent attendant at the A. M. A. convention in San Francisco returned with much to say about the furor among the California profession over the increasing number and power of the quacks and cults in that state. One of the teachers in Harvard Medical School when queried about the outcome is quoted as having said in effect that they have

taken an osteopath into the staff of one of their teaching hospitals. There they propose to give him a chance and see what he will be able to accomplish. We must remember in this connection that the qualified optometrists are by no means "quacks." It seems entirely logical that we should assist them where possible to a further realization and attainment of professional standards: discarding advertising and holding their members to the strictest ethical code. Then, as they improve, let no other group, without any standards, be allowed to take their place.

E. L. T.

MISCELLANEOUS

THE FARGO CHILD HEALTH DEMONSTRATION

WILLIAM J. FRENCH, M.D., Director

The Fargo Child Health Demonstration has for its object the making of an outstanding demonstration of methods, along the latest and most approved lines, for the care and betterment of children. These include among other things methods for the education and care of expectant mothers, work with new-borns and other infants up to two years of age, the supervision and care of children of pre-school age and a complete method of work with school children involving physical examinations, regular weighing and measuring and a comprehensive system of health education including nutrition, with home follow-up work by a nursing corps. The scheme of work is fundamentally educational.

The Demonstration, which is financed by the Commonwealth Fund of New York, and administered co-operatively by a Committee composed of representatives of the Fund and the American Child Health Association, is not attempting to do this work alone but is operating on a partnership basis with the city of Fargo. Already the city through a representative citizens committee has entered into this partnership to a very considerable extent by providing for a full time health officer, providing offices and office equipment for the Demonstration, and the paying of the salaries of three of the seven nurses through the Board of Education and the Red Cross. At the end of the Demonstration period of five years the city will assume entire financial and administrative responsibility.

Of equal importance is the co-operative relationship which exists between the medical profession of Fargo and the Demonstration, as expressed in an agreement entered into between them. The preamble to this agreement follows:

"The following is submitted to the Cass County Medical Society for its consideration and approval, to the end that there shall be a complete and harmonious understanding between the physicians of Fargo and the Fargo Child Health Demonstration and that these two organizations working in close co-operation may together and with the help of all other agencies do all that can be done for the

health and well-being of the children and the people of Fargo.

"The Demonstration comes, not as a competitor in the field of curative medicine, but as an agency advocating and teaching certain ideas in preventive medicine and with a willingness to demonstrate these ideas to you as physicians and to the public by furnishing or causing to be furnished to both certain forms of service.

"These services aim to teach prevention of disease and how to keep the well individual well and happy.

"The methods hereinafter proposed will, it is believed, thoroughly protect and conserve the interest of the private practitioner. In addition it is hoped that they will stimulate the growth of a new relationship between the physician and his patient whereby the former will expect to give and the latter to receive, and pay for, information and service which will aim to keep him and his children well."

The agreement then goes on to state:

"It is agreed between the Cass County Medical Society and the Fargo Child Health Demonstration that the Demonstration will take over the direction of the present Well Children's Clinic operated by the Red Cross Infant Welfare Society with the assistance of the Cass County Medical Society, and conduct same along the following lines:

"The Demonstration will establish a Health Center at which will be held one or more consultations each week for presumably well children. No child who is known to be ill will be accepted by the Consultation. Such ill children, if they present themselves, will be referred immediately to their family physician. In no case will any particular physician be recommended. It is suggested in this connection that a list of the members of the Cass County Medical Society be posted in the Commercial Club or in the Health Center, or in both, and anyone having no physician be referred to this list in order that they may make their own selection.

"As a certain number of indigents who have no physician will appear, it is suggested that for the present certain physicians volunteer to treat these cases in the event of their being found to have defects or illnesses.

"The question of what constitutes ability to pay for medical services depends upon local conditions to a certain extent. The Demonstration will take steps to determine what these conditions are and will submit its findings to the Medical Society for its information and approval. In the meantime the Demonstration through its nurses and in all available ways will attempt to determine the facts in each case before referring that case for free treatment or recommending reduced charges. The facts in each case will be laid before the physician interested.

"As the work of the Health Center is educational and not charitable, it is laid down as a principle that all who wish shall be entitled to take advantage of its benefits, irrespective of their financial standing.

"A history of each child brought to the consultation will be taken and the name of the family physician ascertained. The child will then be given a thorough physical examination, weighed and measured. A careful record of all findings will be kept. If the child is found to be ill or to have defects, he will be referred to the family physician, who will be notified either by telephone or in writing of the

conditions found. The parents of these cases will be urged to consult their physician in reference to their child's condition and to abide by his decision. It is agreed that general advice as to bathing, clothing, diet, water, fresh air, exercise, rest, etc., shall be given at the consultation. Feeding formulæ may be written for infants needing them. Copies of these formulæ will be sent to the family physician.

"It is agreed that well infants and children shall be entitled to return to the consultation for such future weighings and measurings and at such intervals as the physician in charge may deem necessary. This is a service offered not only to the public but to physicians as well, for it is planned to furnish each child with a card on which its weights will be recorded, and which can be exhibited to the family physician so that he may watch the child's progress. The Health Center will gladly send special reports of weights and measures direct to the family physician whenever requested.

"It is agreed that with the exception of writing formulæ the physician in charge of the consultation will never prescribe except in cases of the greatest emergency when the possible saving of a life may be at stake.

"It is agreed that cod liver oil, or cod liver oil emulsion, is a food and not a medicine, and may be prescribed at the consultation.

"It is agreed that the same principles shall govern the work of the nurses of the Demonstration in the field and in the schools, and the work of the school physician, except that in school work the parents shall be notified and advised of defects found and urged to have these conditions corrected. It shall not be deemed necessary, however, to notify the family physician of these conditions as a routine procedure.

"It is proposed to bring to Fargo a pediatricist who will devote his entire time to, and be in charge of, the medical work of the Demonstration. He will not engage in private practice in Fargo. He will conduct the consultation and be available for consultation work with the physicians of Fargo, should they care to make use of his services, either by sending cases to him at the Health Center or by calling him into consultation at the hospitals or in private homes. It is hoped the physicians of Fargo will make use of his services, not only for ill children but also for that large group of apparently well or near-well children whom physicians are sometimes call to see because the parents, realizing their children are not making satisfactory progress, and feeling they as parents are not doing quite all they should for them, and not knowing what else to do, seek professional advice. In these cases and in those where parents, while feeling that their children are perfectly well, yet desire to fortify themselves with professional advice relative to present or future care of the child, the trained pediatricist can be of inestimable service to the family physician. No charges will be made for his services, either to the family or the physician.

"It is agreed that the consultation likewise shall be free. No charge shall be made for any of the services rendered there.

"Expectant mothers may come to the Health Center for information and advice and in other ways may come to

the attention of the Demonstration or its nurses. For these the Center will stand ready to make or have made urine examinations and to take blood pressure readings if requested to do so by the physician in charge of each case. Other examinations will not be made. The Health Center will urge these cases immediately to get in touch with their physician, explain to them the importance of having proper examinations made, and, if desired, give them information relative to personal care and the hygiene of pregnancy. Important information about these cases can be obtained and when obtained will be communicated to the physician with the least possible delay. The Demonstration nurses are available for service to these patients and will see that physician's orders are carried out. They cannot be present at deliveries as a routine, but will make post-natal visits and will give post-natal care.

"It is hoped that through the city the Demonstration will be furnished with the names of all new-born children. At least one visit will be made to these infants as soon as possible after birth and such subsequent visits as the family or the physician may desire."

Not to be outdone the dentists of Fargo volunteered to examine the teeth of all the children in the kindergartens, first and second grades of the public and parochial schools. These examinations were made a few weeks ago. The dentists will care for, without charge, all indigents needing dental attention.

Space does not permit going into a detailed résumé of the many things that have been done or are in the process of being accomplished. Those responsible for the Demonstration believe that with such whole hearted co-operation on the part of the professional and civic groups the success of the Demonstration is assured.

OBITUARY

DR. WILLIAM HENRY MITCHELL

Following an illness of six weeks, Dr. William Henry Mitchell, a practicing physician in Minneapolis for forty-five years, died at the age of 73 years at his summer home in Mound, Minn., August 18, 1923.

Dr. Mitchell came to Minneapolis in 1868 and practiced there continuously until 1914, when he retired from active practice and moved to his home at Mound.

Dr. Mitchell is survived by his widow and two sisters, Mrs. S. B. Stoddard, of Rock Island, Ill., and Mrs. Ella Hepbourn, Moline, Ill.

DR. PALMER HORACE IRISH

Dr. P. H. Irish died at his home in Akeley Friday, August 24, 1923, at the age of 46 years.

Dr. Irish was born March 9, 1877, near Essex, Vermont. He came to Minnesota at the age of eighteen and took up his medical studies at the University of Minnesota, from which he was graduated in 1900. In August of the same year he began the practice of medicine at Akeley, where he continued his medical work until the time of his death.

Besides his wife and son, Palmer Horace, Jr., Dr. Irish is survived by two brothers and two sisters.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MINNESOTA STATE MEDICAL ASSOCIATION

The annual meeting of the Minnesota State Medical Association will take place Wednesday, Thursday and Friday, October 10, 11 and 12, 1923, at Saint Paul, with headquarters at the Saint Paul Hotel. The meetings of the Council and the House of Delegates on the first day of the convention will be held at the Saint Paul Hotel.

The scientific meetings will be held Thursday and Friday, October 11 and 12, at the Masonic Temple, Sixth and Smith streets.

The Ramsey County committees in charge of the coming meeting are: General Chairman of Committees—Dr. Fredrick L. Neher.

Committee on Exhibits—Dr. F. M. Whitmore, chairman; Dr. W. R. Shannon, Dr. J. N. Dunn.

Committee on Banquet and General Entertainment—Dr. Edgar H. Norris, chairman; Dr. W. C. Gardner, Dr. R. L. Kennedy.

Committee on Hotel Accommodations—Dr. J. L. Martineau, chairman; Dr. W. C. Rutherford, Dr. L. A. Hilger.

Committee on Entertainment of Ladies—Dr. A. Gruenhagen, chairman; Dr. L. W. Barry, Dr. C. C. Bell.

Committee on Lantern Slides—Dr. W. R. McCarthy, chairman; Dr. V. P. Hauser, Dr. H. E. Richardson.

Committee on Telephone Service—Dr. A. Pederson, chairman; Dr. G. N. Ruhberg, Dr. J. M. Sprafka.

Committee on Meeting Places—Dr. L. S. Ylvisaker, chairman; Dr. F. E. Foley, Dr. H. E. Hullsiek.

Sign Committee—Dr. W. D. Brodie, chairman; Dr. A. E. Mark, Dr. E. K. Geer.

Golf Committee—Dr. E. M. Jones, chairman; Dr. H. E. Hunt, Dr. F. L. Beckley.

Those desiring hotel accommodations in advance may communicate with Dr. J. L. Martineau, 225 Shubert Bldg., Saint Paul, chairman of the Committee on Hotel Accommodations. Arrangements may also be made direct with the hotels. For the convenience of outside visitors the following list is given:

St. Paul Hotel, 5th and St. Peter.....	\$3.50 and up
Ryan Hotel, 5th and Robert.....	\$2.00 and up
St. Francis Hotel, 7th and Wabasha.....	\$2.00 and up
Boardman Hotel, 9th and Wabasha.....	\$1.50 and up

A special meeting of the Women's Auxiliary of the Minnesota State Medical Association will be held in the Saint Paul Hotel, at 10 A. M., Thursday, October 11. The meeting will include a report by the delegates to the National Auxiliary, a report of the year's work and election of officers. This meeting will be open to any doctor's wife interested in organization affairs and the wife of each member of the Association is cordially invited to attend.

A luncheon for visiting ladies will be given at the Women's City Club, 4th and Cedar, at one o'clock, Thursday, October 11. All visiting ladies are urged to register with the members of the Association at the Saint Paul

Hotel upon arrival to facilitate the matter of making proper arrangements for the number to attend the luncheon.

The Johns Hopkins Alumni Association will hold its annual luncheon on the second day of the convention, Thursday, October 11, at 12:30 o'clock in the St. Paul Hotel.

The luncheon of the Minnesota Alumni Association will be held Friday, October 12, at 12 o'clock at the St. Paul Athletic Club, 4th and Cedar.

NOTICE OF AMENDMENT

Notice is hereby given of an amendment to Article IX, Section 3, of the constitution of the Minnesota State Medical Association submitted to the House of Delegates at its meeting Saturday, October 14, 1922, in Minneapolis.

The section mentioned reads as follows:

"The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councillor, and no person shall be elected to any such office who is not in attendance upon that Annual Session, and who has not been a member of the Association for the past two years."

It is proposed to change the section to read as follows:

"The officers of this Association shall be elected by the House of Delegates at a meeting to be held the second day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councillor, and no person shall be elected to any such office who is not in attendance upon that Annual Session, and who has not been a member of the Association for the past two years."

TRI-STATE DISTRICT MEDICAL ASSOCIATION ANNUAL MEETING

DES MOINES, IOWA, OCTOBER 29 TO NOVEMBER 1, 1923,
INCLUSIVE

Minnesota is now a part of the Tri-State District Medical Association and on an equal footing with Iowa, Illinois and Wisconsin. At the meeting this year there are to be a vice president and three trustees elected from Minnesota.

In the September number of MINNESOTA MEDICINE a preliminary program of this meeting was published and only the desire to avoid duplication prevents us from publishing a final program of the meeting.

Headquarters will be at the Fort Des Moines Hotel and all sessions will be held in the new Woman's City Club building of Des Moines. The four days will be filled with post-graduate medical work beginning with diagnostic clinics at 7 A. M. each day, the evenings being taken up by addresses. A banquet is scheduled for the evening of the fourth day, November first.

Those who attended last year's meeting at Peoria know what valuable work this vigorous sectional society is doing and the enormous amount of clinical and didactic work that is crowded into the short period of four days.

CENTRAL MINNESOTA DISTRICT MEDICAL SOCIETY

The annual picnic meeting of the Central Minnesota Medical Association was held Thursday afternoon, August 23, at the Teepetonga Hotel, Green Lake, Spicer.

The afternoon program included the following papers:

Acute Ear Conditions, Dr. P. C. Davison, Willmar.

Differentiation Between Medical and Surgical Gastric or Duodenal Ulcer, illustrated with lantern slides, Dr. Archibald MacLaren, St. Paul.

Insulin and High Fat Feeding in Diabetes in Children, Dr. N. O. Pearce, Minneapolis.

Traumatic Rupture of the Kidney and Its Diagnosis, Dr. B. J. Branton, Willmar.

During the program the visiting ladies were entertained. At six-thirty the banquet was held in the hotel dining room.

Dr. J. C. Jacobs, of Willmar, is president of the association and Dr. C. L. Scofield, of Benson, is secretary.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

The Mississippi Valley Medical Association will hold its forty-eighth annual session at Hot Springs, Arkansas, October 9, 10 and 11, 1923.

A program of outstanding merit and appeal has been arranged including Symposia on Cardio-vascular Renal Diseases and Diseases of the Upper Abdomen.

A special attraction will be a tour of the Reservation with its wonderful natural phenomena and the session at the famous Government clinic.

Headquarters will be at the Eastman Hotel. Dr. Charles Travis Drennen, of Hot Springs, is chairman of the Committee on Arrangements.

UPPER MISSISSIPPI MEDICAL SOCIETY

The annual meeting of the Upper Mississippi Medical Society was held in International Falls, Monday, August 20.

During the forenoon guests enjoyed a trip through the local paper mill and were entertained at luncheon at the cottage of Dr. Mary Ghostley at Birch Point.

The afternoon session was devoted to the scientific program, which included addresses by Dr. T. R. Martin, Duluth; Dr. M. A. Shillington, St. Paul; Dr. E. W. Johnson, Bemidji, and Dr. E. Klaveness, of Minneapolis.

MINNEAPOLIS SURGICAL SOCIETY

The Minneapolis Surgical Society will put on the first monthly Clinic Day, Thursday, October 4, 1923.

The program, tentatively arranged, is as follows:

8:00 A. M. to 12:00 noon—Operative Clinics at the General Hospital, by Drs. Wilcox, Corbett, Zierold, Olson, Lynch, Maxeiner and Robitshek.

2:00 P. M. to 4:00 P. M.—The Clinical Pathological Society will put on a program at the University Hospital.

6:30 P. M.—Luncheon at the General Hospital followed by presentation of clinical cases, and a paper by Dr. R. C. Webb, "Drainage in Appendiceal Cases." The discussion on this paper will be opened by Dr. Archibald MacLaren, of St. Paul.

Visiting physicians are cordially invited to attend the entire program.

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

The annual meeting of the Southwestern Minnesota Medical Society will be held Thursday, November 8, 1923, at the Worthington Sanatorium.

The program will include papers by Dr. S. A. Slater, Worthington; Dr. H. J. Leigh, Lakefield; Dr. F. W. Metcalf, Fulda; and Dr. R. S. Riser, Minneapolis. Election of officers for the ensuing year will also take place at this meeting.

OF GENERAL INTEREST

Dr. A. Elliott Vik, formerly of Big Lake, has moved his practice to Winthrop.

Dr. A. J. Scholl, of Rochester, has returned from a two weeks' trip to New York and Baltimore.

Dr. and Mrs. Harold Habein, of Minneapolis, are the parents of a son, born Saturday, August 18th.

Dr. and Mrs. M. J. Hanson, of New London, have returned from a trip through northern Minnesota.

Dr. Jakob Hvostlef, formerly of Minneapolis, is now located at International Falls for the practice of medicine.

Dr. E. L. Bradley, formerly of the Mayo Clinic, Rochester, is now associated in practice with Dr. E. I. Lindgren at Duluth.

Dr. M. B. Murray, formerly of Maywood, Illinois, has accepted a position on the staff of the More hospital at Eveleth.

Dr. and Mrs. Waltman Walters, of Rochester, are receiving congratulations on the arrival of a daughter, born August 27th.

Dr. L. A. Steffens, of Red Wing, has returned from a two weeks' stay in Chicago, where he was engaged in post-graduate work.

Dr. R. M. Wilder and Dr. H. E. Robertson, of Rochester, have returned from a month's canoe trip in the woods north of Rainy Lake.

Dr. Carl Hartley Greene, of Rochester, returned September 12 from California, where he spent a month in the Yosemite Valley.

Word has been received of the death of Mrs. W. H. Arndt, wife of Dr. W. H. Arndt, of Frazee, which occurred August 27.

Dr. Clarence E. Wilson, formerly of Dakota, has purchased the practice of Dr. Kierland at Harmony, where he has established his offices.

Dr. and Mrs. Charles Bolsta and daughter, Mildred, of Ortonville, recently returned from a trip through the lake region of northern Minnesota.

Dr. D. P. Maitland, after an absence of a year spent in Florida and in attendance at clinics in Minneapolis and Rochester, has returned to his practice at Jackson.

Miss Florence Mae Lampert, of Madison, Wisconsin, and Dr. H. L. Parker, of the Mayo Clinic, Rochester, were married in Madison, August 4.

Dr. S. M. Johnson, who has been a member of the medical staff at the Shaw hospital, Buhl, for the past eight years, has resigned his position and is now located in St. Paul.

Dr. Baldwin Borreson, of Bemidji, has disposed of his practice there and is now located at Remer, where he plans to establish a small hospital in connection with his office.

Dr. E. S. Judd, Dr. M. S. Henderson, Dr. D. M. Berkman and Dr. D. F. Hallenbeck, of Rochester, and their families have returned from a three weeks' stay at Grand Marais.

Dr. Donald H. Edwards, who has been engaged in United States health work at Louisville, Kentucky, for the last few years, has recently accepted appointment as school physician at Hibbing.

The marriage of Miss Mary McGonagle, of Duluth, and Dr. Mark Hopkins Tibbetts, of the Duluth Academy of Clinical Medicine, was solemnized at the home of the bride's parents, August 15.

Dr. J. W. Doyle and Dr. G. E. Mulvihill, of Minneapolis, have opened the Chicago Avenue Clinic at Twenty-ninth Street and Chicago Avenue, and will specialize in the treatment of skin disease.

Dr. E. C. Mason, who had been on the staff of the Mayo Clinic since July 1, 1921, took up his duties as Director of the Clinical Laboratories at the Ford Hospital, Detroit, Michigan, September 1.

Dr. Laura Mary Moench, formerly of the Mayo Foundation and Clinic, left Rochester, August 28, for Northampton, Mass., where she has accepted a position as Instructor in Hygiene at Smith College.

The marriage of Miss Lucille Murphy, of Fargo, N. D., to Dr. W. J. Dowsell, of Benson, took place Saturday, September 1, at the home of the bride's parents. Dr. and Mrs. Dowsell are now at home in Benson.

Dr. and Mrs. George T. Baskett, of St. Peter, recently returned from a three weeks' trip through Yellowstone National Park. They were the guests of Dr. Baskett's brother at Big Timber, Montana, while en route.

Dr. Katherine Pardee, formerly of the Mayo Foundation and Clinic, has accepted a position as resident physician at the Minnesota State Teachers' College at Moorhead. Dr. Pardee left Rochester August 30.

Dr. C. J. Hutchinson, who has completed his fellowship under the Mayo Foundation, left early in September and will take a cruise on the Great Lakes with the United States Naval Reserve before going into practice.

Announcement has been received of the marriage of Miss Doris Hooper, daughter of Mr. and Mrs. William Hooper, Republic, Mich., to Dr. S. E. Urberg, of Duluth, Friday, August 16. Dr. and Mrs. Urberg are now at home at 1611 East Fourth street, Duluth.

Dr. C. A. Rathbun, physician at Sauk Rapids for the past five years, has become associated in practice with Dr. H. W. Goehrs, of St. Cloud. For the present Dr. Rathbun will retain an office at Sauk Rapids in addition to his work with Dr. Goehrs.

Dr. F. M. Babcock and Dr. I. F. Selly, of Northfield, and Dr. P. A. Smith, of Faribault, were recently appointed as members of the United States Board of Examining Surgeons, Bureau of Pensions, for Rice County. The headquarters of the board will be in Northfield.

Dr. Orville N. Meland, of Warren, sailed September 11 from New York for Europe, where he will spend six months

or more in visiting hospitals and clinics in London, Gothenburg, Vienna and Paris and in pursuance of his studies in surgery. Before returning home, Dr. Meland expects to make a brief tour of the Scandinavian countries, Germany, France and other portions of the continent.

As a result of poor health, Dr. C. J. Woolway, superintendent of the Deerwood Sanatorium, Deerwood, has definitely resigned his position, which he has held for the past three years. He will be succeeded by Mrs. Woolway as superintendent with Dr. C. B. Bernard, formerly medical director of the Sand Beach Sanatorium and more recently of a tuberculosis hospital in St. Louis, Mo., in charge of the medical work.

Dr. Adolph Lorenz, of Austria, has just completed a two weeks' stay at the Perryburg Hospital, Buffalo, New York, where he came September 18 to attend patients desiring his services. Fifteen thousand applications had been made the first part of September for operations and the announcement was made at that time that Dr. Lorenz would attend 100 persons a day. A wing of the hospital was set aside for persons unable to afford hospital expenses.

Dr. Robert Emmett Farr presented a lecture before the meeting of the American Association of Obstetrics, Gynecology and Abdominal Surgery, which was held at Philadelphia, Sept. 19 to 21. He was the guest of honor at a special meeting of surgeons at Providence, R. I., on Sept. 22. Dr. Farr also presented a series of lectures before the Academy of Medicine in Syracuse, N. Y., at a meeting of surgeons in New York City and before the Second Councilor District of the Ohio State Medical Association at Dayton, Ohio.

Resident and travel scholarships amounting to \$10,000.00 have been offered by the American Child Health Association, 370 Seventh Ave., New York City, to be effective during the school year, 1923-1924, and during the summer of 1924. The principal requirements are that physicians who want to improve their qualifications for child health work, take courses in institutions giving approved courses—demonstrations and places doing some outstanding piece of child health work. These scholarships are being offered in order to meet the growing demand for more and better trained physicians in the field of child health and are open to anyone who wishes to apply for them through the New York office of the Association.

The Central School of Nursing of the University of Minnesota will enter during the ensuing year only two classes; the one for the fall quarter commencing September 26, 1923; the other for the spring quarter commencing April 2, 1924.

It is important that applications be made at as early a date as possible prior to either entering quarter. A high school diploma is a prerequisite for admission.

The school commands the nursing services, for educational purposes, of four associated hospitals, the University Hospital, the Charles T. Miller Hospital, the Minneapolis General Hospital, and the Northern Pacific Hospital.

All students are entered under University registration. Applications are submitted to the Director, Miss Louise M. Powell, School of Nursing, University of Minnesota.

NEW AND NON-OFFICIAL REMEDIES

In addition to the articles enumerated in September, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies:

LEDERLE ANTITOXIN LABORATORIES:

Thromboplastin-Lederle.

NATIONAL ANILINE & CHEMICAL CO.:

Enteric Coated Tablets Neutral Acriflavine—"National."
Ointment Neutral Acriflavine—"National" 1 per cent.

E. R. SQUIBB & SONS:

Solution of Hypophysis-Squibb.

Arsphenamine-Squibb, 1 gm.

Arsphenamine-Squibb, 1.2 gm.

WINTHROP CHEMICAL CO.:

Luminal Tablets $\frac{1}{2}$ gr. (Winthrop Chemical Co.)

NEW AND NON-OFFICIAL REMEDIES

Protein Mixtures for Diagnosis.—Mixtures of two or more pollen, epidermal or food protein preparations. These mixtures are supplied in order that the number of skin tests to determine sensitiveness to proteins may be reduced. If sensitiveness to a given protein mixture is found, then tests are made with the individual proteins contained in the mixture. (See Pollen and Epidermal Extracts and Biologically Reactive Food Proteins, New and Non-official Remedies, 1923, p. 234.)

Group Allergens Diagnostic-Squibb.—A mixture of two or more allergens-Squibb in equal proportions. These protein mixtures are used to determine sensitiveness to proteins (see preceding article, Protein Mixtures for Diagnosis). Group Allergens-Squibb are marketed in vials containing 0.025 gm. The following Group Allergens-Squibb have been accepted: Type I, Beet, Carrot, Parsnip, Radish, Turnip; Type II, Cabbage, Celery, Lettuce, Onion, Spinach; Type III, Artichoke, Asparagus, Cauliflower, Rhubarb, String Bean; Type IV, Cucumber, Egg Plant, Pumpkin, Squash, Tomato; Type VI, Apricot, Cherry, Peach, Plum, Prune; Type VII, Cantaloupe, Grape Fruit, Lemon, Orange, Watermelon; Type VIII, Apple, Banana, Pear, Pineapple, Fig; Type IX, Almond, Chestnut, Filbert, Hazelnut, Peanut; Type X, Black Walnut, Brazil Nut, English Walnut, Hickory Nut, Pecan; Type XI, Barley, Buckwheat, Corn, Oat, Rice; Type XII, Beef, Goat, Horse, Pork, Mutton; Type XIV, Chicken, Duck, Goose, Guinea-hen, Turkey; Type XV, Bluefish, Codfish, Haddock, Halibut, Mackerel; Type XVI, Butterfish, Salmon, Sea Bass, Sole, Whiting; Type XVII, Clam, Oyster, Crab, Lobster, Scallops, Shrimp; Type XVIII, Black Pepper, Ginger, Mustard, Paprika, Vanilla; Type XIX, Cocoa, Coffee, Tea; Type XX, Egg (all proteins), Cow's Milk (all proteins), Goat's Milk (all proteins); Type XXI, Cat (hair), Cow (hair), Dog (hair), Horse (dander), Rabbit (hair); Type XXII, Chicken, Duck, Goose; Type XXVI, Micrococcus Catarrhalis, Pneumococcus 1, Pneumococcus 2, Pneumococcus 3, Pneumococcus 4; Type XXVII, Staphylococcus Aureus, Staphylococcus Albus, Staphylococcus Cit-

reus, Streptococcus Pyogenes, Streptococcus Viridans. E. R. Squibb & Sons, New York.

Pollen Antigens-Lederle.—In addition to the products listed in New and Non-official Remedies, 1923, p. 239, the following have been accepted: Annual Salt Bush; Bermuda Grass; Cocklebur; Johnson Grass; Mountain Cedar; Mugwort; Oak; Orchard Grass; Perennial Rye Grass; Rabbit Bush; Redroot Pigweed; Russian Thistle; Spiny Amaranth; Yellow Dock. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., Aug. 4, 1923, p. 393.)

Protein Extracts Diagnostic-P., D. & Co.—Protein extracts in the form of paste, the base of which is a mixture of glycerin and powdered boric acid. One part represents one part of original material. For a discussion of the actions, uses and dosage, see Pollen and Epidermal Preparations and Biologically Reactive Food Proteins, New and Non-official Remedies, 1923, p. 234. Protein Extracts Diagnostic-P., D. & Co. are marketed in collapsible tubes containing sufficient material for fifty tests.

Group Protein Extracts Diagnostic-P., D. & Co.—A mixture in equal proportions of two or more Protein Extracts Diagnostic-P., D. & Co. For a discussion of the actions, uses and dosage, see preceding article, Protein Mixtures for Diagnosis. Group Protein Extracts Diagnostic-P., D. & Co. are marketed in collapsible tubes containing sufficient material for fifty tests.

Elixir of Luminal.—Each 4 c.c. (one fluidrachm) contains 0.015 gm. ($\frac{1}{4}$ gr.) of luminal in a menstruum containing alcohol 20 per cent. For a discussion of the actions, uses and dosage of luminal, see New and Non-official Remedies, 1923, p. 63. Winthrop Chemical Co., New York.

Scarlet Red Medicinal—"National."—A brand of Scarlet R. Medicinal Biebrich-N. N. R. For a discussion of the actions, uses and dosage of Scarlet R. Medicinal Biebrich, see New and Non-official Remedies, 1923, p. 275. National Aniline & Chemical Co., New York. (Jour. A. M. A., Aug. 18, 1923, p. 548.)

PROPAGANDA FOR REFORM

Collosoil Calcium.—E. E. Prest (Brit. Med. J., Jan. 14, 1922) recommended a new "Collosoil" brand of so-called colloidal calcium for the treatment of tuberculosis. T. C. Graves (Lancet, Nov. 4, 1922) discussed "Colloidal Calcium in Malnutrition, Chronic Sepsis and Emotional Disturbances." The publications of Prest and Graves serve as uncritical endorsements of another addition to the Collosoil preparations. The conclusions reached by Graves concerning the beneficial action in the treatment of "Emotional Disturbances" do not seem justified by the character of the evidence he presents. Such results as he reports are common experiences without the use of medication. There is no basis, either in theory or in the evidence presented, for administering a calcium salt in colloidal form; if advisable, soluble compounds of calcium such as the lactate and chlorid may be administered hypodermically. Thanks to the timely report of the Council on Pharmacy and Chemistry, the Collosoil preparations are not being pushed in the United States though they are being actively exploited in England. (Jour. A. M. A., Aug. 4, 1923, p. 409.)

Two More Electronic Diagnoses.—A physician reports that one of his patients became alarmed by a diagnosis of generalized carcinoma made by an osteopath who is a disciple of Albert Abrams. In order to test the diagnostic ability of this disciple of Abrams the physician had the patient send the Abrams disciple a specimen of blood (which was taken from a young rooster who had been confined to his coop since birth) for diagnosis. The diagnosis which was received showed syphilis, gonorrhea, generalized carcinoma, sarcoma of the spine, chronic malaria and diabetes. Another physician reports a diagnosis made by an Abrams follower on a man who is working and by no means ready to die. The diagnosis showed "diminished resistance" (an Abrams euphemism for syphilis), "carcinoma of gall bladder," "streptococcus," "sarcoma of both kidneys, right worse," "tuberculosis both lungs, upper right and middle left," "sarcoma," "gallstones," "malaria" and "pneumonia." (Jour. A. M. A., Aug. 11, 1923, p. 493.)

Bacillus Acidophilus Therapy.—A method for the preparation of Bacillus acidophilus milk has been published by Rettger and Cheplin (Arch. Int. Med., Vol. 29, 357, March 1922). Microscopically, Bacillus acidophilus closely resembles the Bacillus bulgaricus, but cultural methods of distinction have been proposed. The therapeutic value of the various lactic acid ferment preparations is discussed in New and Non-official Remedies, 1923. While recent publications give evidence in favor of Bacillus acidophilus therapy, W. H. Morriss expresses the belief that whatever beneficial results occurred in the cases reported by him were due to some other factor than the actual transformation of the common intestinal bacteria into the acidophilus type of organism. (Jour. A. M. A., Aug. 11, 1923, p. 494.)

Tapeworm Remedies.—Oleoresin of aspidium and pellerin tannate are the remedies of choice, the first being more popular. To give the remedies the best chance for action, the intestinal contents should be reduced as much as possible by restriction of solid food and evacuation before the treatment. On the morning of the treatment the patient should stay in bed and be given from 6 to 8 gm. of oleoresin of aspidium divided into as many capsules in the course of 10 to 15 minutes. Two hours later a saline cathartic should be administered and repeated every two hours until thorough evacuation has been secured. (Jour. A. M. A., Aug. 11, 1923, p. 495.)

The Chlorin Antiseptics.—The essential attributes of Surgical Solution of Chlorinated Soda-N. N. R. is a definite but mild alkalinity, hypertonicity and presence of the correct amount of sodium hypochlorite. Because hypochlorite solutions are unstable and their active component is not available in solid form, chloramin-T, dichloramin-T and halazone were evolved. The first two have been received as worth-while additions to our materia medica. Because the three products contain their chlorin in its less stable modification, the composition and purity of these products have been watched by the A. M. A. Chemical Laboratory. Recently, P. N. Leech of this laboratory reported on the quality of the market supply of American-made chloramin-T, dichloramin-T and halazone, which are described in New and Non-official Remedies. Out of eight specimens of chloramin-T, one was considerably substandard, two were

slightly substandard and five were satisfactory. The chloramin-T tablets, chloramin-T pastes and an aromatic powder were satisfactory. Two out of four specimens of a surgical powder were markedly decomposed. All the specimens of Council-accepted dichloramin-T complied with the standards. Re-examination of specimens of the chloramin examined five years previously showed that chloramin-T and halazone are quite stable, but the dichloramin-T specimens had decomposed somewhat. Leech believes that both the hypochlorite preparations and the chloramins are active oxidizing agents because of the positively charged chlorine atom which they contain, and that their antiseptic action depends on this. He determined that the oxidizing power of chloramin-T is much greater in neutral than in even slightly alkaline solutions. From this it is apparent that one strength of a solution of pure chloramin-T may be active as a germicide while a solution of the same strength containing sodium bicarbonate may be ineffective. (Jour. A. M. A., Aug. 18, 1923, p. 581.)

Administration of Iodid for Goiter.—For the prophylaxis of goiter, Marine and Kimball employed 2 gm. of sodium iodid given in 0.2 gm. doses daily for ten consecutive school days. This was repeated twice yearly. Marine and Kimball state that this amount of iodid is excessive and that 1 gm. of sodium iodid distributed over a longer period would be better. Sodium iodid may be prescribed in solution, a dose to a teaspoonful. If the patient be furnished with a small quantity of potassium iodid—say 1 gm.—and advised to mix it thoroughly with 1 kg. of ordinary table salt for occasional seasoning of his food at the table, he will get all the iodid that is necessary for prophylactic purposes and in an entirely unobjectionable manner. (Jour. A. M. A., Aug. 18, 1923, p. 598.)

Bismuth Preparations in Syphilis.—The Council has issued a statement of the present status of bismuth preparations in the treatment of syphilis. In this report the history of the use of bismuth salts in the treatment of syphilis is reviewed, the evidence for the value of bismuth salts as compared with mercury preparations and arsphenamine is considered and the dosage and danger of untoward effects are discussed. The statement of the Council concludes with the following summary:

1. Bismuth preparations have a sufficient experimental basis both for their favorable effects and limitations. The advantage consists in their distinct action on experimental syphilis. The limitations are clear, if one considers the disproportion between the large dose, which is necessary to sterilize an animal, and the small dose, which can be tolerated by man. The available information appears to show that bismuth preparations will not cure syphilis, when used alone.

2. Bismuth treatment is not usually injurious if the necessary precautions (observations for beginning stomatitis, examination of urine, etc.) are observed. Intravenous injection is to be strictly avoided. The therapeutic effect of bismuth is rated by the majority of authors between arsphenamine and mercury. Bismuth compounds may be valuable in cases in which the patients are intolerant to the other drugs used in the treatment of syphilis or resistant to them, as shown by a persistent positive Wassermann reaction. (Jour. A. M. A., Aug. 25, 1923, p. 661.)

BOOK REVIEWS

BOOKS RECEIVED FOR REVIEW

GENERAL MEDICINE. VOL. I. THE PRACTICAL MEDICINE SERIES. Edited by George H. Weaver, M.D., Lawrason Brown, M.D., Robert B. Preble, A.M., M.D., Bertram W. Sippy, M.D., Ralph C. Brown, B.S., M.D. Series 1923. Chicago: The Year Book Publishers.

A CLINICAL GUIDE TO BEDSIDE EXAMINATION. Dr. H. Elias, Dozent and Assistant at First Medical Clinic of University of Vienna, Austria; Dr. N. Jagic, Extraordinary Professor and Chief Physician to the Sofienspital, Vienna, Austria; Dr. A. Luger, Dozent and Assistant at Second Medical Clinic of University of Vienna, Austria. Arranged and translated by William A. A. Brams, M.D., Chicago, Adjunct in Medicine, Michael Reese Hospital, formerly Lieutenant Commander, Medical Corps, United States Navy. 135 pages. New York: Rebman Company, 1923. Cloth, \$1.50.

CHEMISTRY FOR NURSES. Fredus N. Peters, A.M., Ph.D., Director of Laboratories and Professor of Chemistry and Metallurgy, Kansas City Dental College; Instructor in Chemistry in Kansas City High School for 23 years; more recently, vice principal. 2nd edition. 302 pages. Illustrated. St. Louis: C. V. Mosby Company, 1923. Cloth, \$2.50.

PRINCIPLES OF BACTERIOLOGY. Arthur A. Eisenberg, A.B., M.D., Director of Laboratories, St. John's Hospital; Pathologist to Lakewood Hospital; Serologist to St. Ann's Hospital, Cleveland, Ohio; Director of Laboratories, Mercy Hospital, Canton, Ohio. Member Society of American Bacteriologists. 2nd edition. 214 pages. St. Louis: C. V. Mosby Company, 1923. Cloth, \$2.25.

OBSTETRICS FOR NURSES. Charles B. Reed, M.D., Obstetrician to Wesley Memorial Hospital, Chicago. 2nd edition. 399 pages. 144 illustrations including 2 color plates. St. Louis: C. V. Mosby Company, 1923. Cloth, \$3.50.

NURSERY GUIDE, for Mothers and Nurses. By Louis W. Sauer, M.A., M.D. Price \$1.75. 188 pages, 12 illustrations. St. Louis, Mo. C. V. Mosby Company. 1923.

This little book is written for mothers and nurses and gives in a clear, concise form the essentials in the care and feeding of infants.

The opening chapter deals with prenatal care and general instructions to the mother during pregnancy and lactation, giving advice on the care of the new-born, as to the nursery, clothing, bowels, bath and sleep.

The last part of the chapter explains the physical development of the infant; height, weight and eruption of teeth of the normal infant, with a general consideration of the causes which delay or retard these processes.

The second chapter is devoted to the nursing infant; giving instruction on the care of the nipples and breast, and a clear explanation of nursing technic, such as establishing and maintaining a proper milk supply, nursing routine and nutritional disturbances of the breast-fed infant.

The premature infant with instructions in maintaining uniform warmth, food and general care is next considered.

The artificial feeding of infants is then taken up. All the different infant foods are described with complete details as to their preparation and indications for their use. A set of rules are formulated for the guidance of mothers in detecting and avoiding gross errors, with an outline of the diet for a child in the second year. Calories are explained along with a table giving one hundred caloric portions.

Nutritional disturbances of the artificially fed child are next described, such as vomiting, diarrhea, weight disturbance, dyspepsia, rickets, tetany and scurvy.

In the last two chapters the common ailments of infancy and the care of the sick infant are described.

Instructions in first aid and modern therapeutic measures as related to infants are given in conclusion.

This nursery guide can be highly recommended to mothers and nurses. The subject matter is treated in such a simple, clear manner that any mother can readily understand it, yet so modern and systematic as to be an ideal text-book for nurses.

A. STEWART, M.D.

OPENING FOR PHYSICIAN at Hitterdal, Minn. Located in Red River Valley, excellent farming country, well settled; town about 300 population. Have drug store and registered pharmacist. Further particulars from Secretary, Commercial Club.

WANTED—A physician acquainted with either the Scandinavian or German languages to locate in excellent farming community. Nothing to sell. Address B66, care of MINNESOTA MEDICINE.

FOR SALE—Ten bed hospital, brick building, well equipped, with office and residence in same building.

Sixty miles northwest of Minneapolis. Very low price. Address B67, care of MINNESOTA MEDICINE.

WANTED—A physician at New Market, Minnesota. Practice includes territory within a radius of 10 to 15 miles. Population, 300, mostly German. Good schools. Residence of nine rooms ready for occupancy. For further particulars, address Martin Poepl, New Market, Minn.

FOR SALE—Practice and part of equipment. Town 600. Good opportunity for right man. No competition. Must be cash—no triflers. Reason for selling—specializing. Address B68, care of MINNESOTA MEDICINE.